Indian and
Northern Affairs

Parks Canada

Affaires indiennes
et du Nord

Parcs Canada

11a

History and Archaeology

Histoire et Archéologie

88-04052/

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

11A

CLAY TOBACCO-PIPES, WITH PARTICULAR REFERENCE TO THE BRISTOL INDUSTRY

IAIN C. WALKER

NATIONAL HISTORIC PARKS
AND SITES BRANCH

PARKS CANADA

DEPARTMENT OF INDIAN
AND NORTHERN AFFAIRS

DIRECTION DES LIEUX ET DES
PARCS HISTORIQUES NATIONAUX

PARCS CANADA

MINISTERE DES AFFAIRES
INDIENNES ET DU NORD

©Minister of Supply and Services Canada 1977.

Available by mail from Printing and Publishing,
Supply and Services Canada, Ottawa, K1A 0S9,
or through your bookseller.

Price Canada: $25.00 a set.
Price other countries: $30.00 a set.
Price subject to change without notice.

Catalogue No.: R64-81/1977-11
ISBN: 0-660-00869-6

Published by Parks Canada under authority
of the Hon. Warren Allmand,
Minister of Indian and Northern Affairs,
Ottawa, 1977.
QS-7027-013-BB-A1

The opinions expressed in this report are those of the author and not necessarily those of the Department of Indian and Northern Affairs.

ERRATA ET CORRIGENDA

Vol A

p.x line 1: for "1930, 1931)." read "1930, 1931 ed)."
p.xxi line 19: for "1790" read "1789"

Vol B

p.453 line 16: for "Berriman" read "Berryman"
p.479 line 21: for "filed" read "failed"
p.492 line 33: for "44" read "43"
p.507 line 6: for "FIG 143" read "FIG 147"
p.510 line 26: for "1744" read "1774"
p.530 line 24: for "St Mary Redcliff" read "St Mary Redcliffe"
p.554 line 4: for "FIG 146" read "FIG 150"
----- line 6: for "FIG 147" read "FIG 151"
p.557 line 44: for "p.1075" read "p.712"
p.591 line 43: for "Oy" read "by"
p.605 lines 13 and 42: for "FIG 150" read "FIG 154"
p.608 line 1: for "H. Camp:" read "H. Camp 1968:"
p.609 line 47: for "pp894-5" read "p.600"
----- last line: for "p.901" read "p.604"
p.611 line 23: for "Cherriton" read "Cheriton"
p.618 line 7: for "p.518" read "p.520"
p.619 line 27: for "is" read "if"
p.624 line 27: for "FIG 118" read "FIG 121"
----- line 30: for "FIG 119" read "FIG 122"
p.625 lines 1-2 and 11: for "FIG 118" read "FIG 121"
p.626 line 10: for "FIG 154" read "FIG 158"
p.637 line 49: for "S R" read "S·R"
p.638 line 17: at end of line replace full stop with comma and add
    "fl Bristol 1818."
p.644 line 45: for "1700" read "1770"
p.648 line 40: for "Campion" read "Champion"
p.649 line 14: for "docization" read "dockization"
p.653 line 10: for "Ghanian" read "Ghanaian"
----- line 46: for "palavar" read "palaver"
p.655 line 27: for "p.978" read "p.652"
p.656 line 32: for "FIG 156" read "FIG 160"
p.657 line 12: for "FIG 154" read "FIG 160"
p.659 lines 13-14: for "FIG 157" read "FIG 161"
----- line 19: for "FIG 156" read "FIG 160"
p.661 line 2: for "FIG 158" read "FIG 162"
p.665 line 21: for "FIG 159" read "FIG 163"
p.667 line 47: insert "fl Bristol 1818," after "1784-1812,"
p.668 line 40: for "FIG 160" read "FIG 164"

p.670 line 42: for "FIG 118" read "FIG 121"
p.672 last line: for "FIG 161" read "FIG 165"
p.673 line 2: for "an" read "and"
p.675 line 34: for "1750-56" read "1751-56"
p.676 line 6: for "Gaspereaux" read "Gaspareaux"
p.676 line 7: for "1750-56" read "1751-56"
p.679 line 26: for "FIG 160" read "FIG 166"
p.680 line 43: for "FIG 162" read "FIG 166"
p.681 line 27: for "bowl" read "stem"
p.686 line 5: for "Berriman" read "Berryman"
----- line 31: for "brought" read "bought"
p.687 line 31: for "p.870" read "p.586"
p.690 line 40: for "A.J. Bold" read "A J. Bold"
p.691 line 18: for "FIG 151" read "FIG 163"
p.693 line 33: for "FIG 107" read "FIG 111"
p.697 line 37: for "reat" read "Great"
p.699 line 23: for "FIG 158" read "FIG 169"
----- line 40: for "FIG 165" read "FIG 169"
p.700 line 32: for "FIG 159" read "FIG 170"
p.701 line 20: for "1972" read "1952"
----- line 28: for "FIG 158" read "FIG 169"
p.712 line 30: for "country" read "county"
p.713 line 1: for "FIG 166" read "FIG 176"
p.716 line 23: for "FIG 166" read "FIG 178"
p.726 line 17: for "St Mary Redcliff" read "St Mary Redcliffe"
p.751 line 3: for "aerial" read "aërial"
p.752 line 8: delete "(FIG 163)"
p.754 line 5: for "FIGS 170, 193-4" read "FIGS 182, 205-6"
p.755 line 34: insert comma between "Peter Addie" and "Council House"
p.787 line 5: for "Liége" read "Liège"
p.816 line 14: insert closing bracket after "paragraph"
p.824 line 46: for "FIG 167" read "FIG 169"
----- last line: for "FIGS 176, 78" read "FIGS 176, 178"

Vol C
p.1418 line 5: for "Vol I pp1012-14" read "p.674"
p.1424 line 2: for "this bowl" read "fig *a*"
p.1438 line 4: for "vol I pp908-9" read "pp608-9"

Vol D
p.1572 line 15: for "FIG 154" read "FIG 158"
p.1602 line 6: for "*Stopper*" read "*stopper*"
p.1682 FIG 122 caption: references in the caption to FIG 122 should read FIG 121
p.1686 FIGS 125-127 caption: references in the caption to FIGS 126, 127, and 128 should read respectively FIGS 125, 126, and 127
p.1688 line 4: for "FIG 126" read "FIG 125"
p.1794 FIG 186 caption: for "FIG 186 and 192" read "FIG 185 and 191"

Pipes are occasionally of extraordinary interest - nothing has more individuality save, perhaps, watches and bootlaces.

Sherlock Holmes

"The Yellow Face", February 1893 (The Memoirs of Sherlock Holmes)

Hot Snacks

Clay Tobacco-Pipes, with Particular
Reference to the Bristol Industry
by Iain C. Walker

Volume A. Chapter 1 - Background
Chapter 2 - Manufacturing Processes
Chapter 3 - History of the Clay Pipe Industry
Chapter 4 - Pipemaking in Various Centres
Chapter 5 - Production Costs and Wages

Volume B. Chapter 6 - Bristol
Chapter 7 - Summary and Conclusions
Endnotes
Bibliography and References

Volume C. Appendices

Volume D. Illustrations

Clay Tobacco-Pipes, with Particular
Reference to the Bristol Industry
by Iain C. Walker

Volume A

iv Frontispiece
viii Abstract
ix Abrégé
xv Acknowledgements
ixx Abbreviations
xx Preface
1 CHAPTER 1 - BACKGROUND
2 Section I - Introduction
8 Section II - English Clay Tobacco-Pipes and their Dating
8 (a) Typology
9 (b) Statistical Dating
12 (c) Heels and Spurs
13 (d) Stem Length
16 (e) Stem Thickness
16 (f) Stem Curvature
16 (g) Stem Decoration
19 (h) Decorated Bowls
24 Section III - Earliest References to Tobacco in the New World
27 Section IV - Earliest References to Tobacco in Western Europe
30 Section V - Tobacco in England
43 Section VI - The 17th-Century Colonial Tobacco Trade
45 Section VII - Methods of Taking Tobacco
45 (a) Introduction
45 (b) Snuff
51 (c) Chewing-Tobacco
53 (d) Meerschaum Pipes
55 (e) Cigars
62 (f) Cigarettes
66 (g) Porcelain Pipes
68 (h) Brier Pipes
74 Section VIII - Tobacco Consumption
79 CHAPTER 2 - MANUFACTURING PROCESSES
80 Section I - Methods used in Northern France
96 Section II - Methods used in Gouda, The Netherlands
113 Section III - Methods used in Belgium
120 Section IV - Methods used in The Westerwald and Brandenburg areas, Germany

129 Section V - Methods used in Denmark
131 Section VI - Methods used in Norway
134 Section VII - Methods used in Great Britain
201 Section VIII - Methods used in the United States of America
211 Section IX - Clays and their properties
241 CHAPTER 3 - HISTORY OF THE CLAY PIPE INDUSTRY
242 Section I - in Great Britain
264 Section II - in The Netherlands
271 Section III - in Germany
279 Section IV - in Belgium and Luxembourg
285 Section V - in France
299 Section VI - in Switzerland
302 Section VII - in Scandinavia
312 Section VIII - in the United States of America
317 CHAPTER 4 - PIPEMAKING IN VARIOUS CENTRES
318 Section I - Introduction
319 Section II - Liverpool
329 Section III - Chester
334 Section IV - Glasgow
354 Section V - Montreal
363 Section VI - East London
388 Section VII - Conclusions
393 CHAPTER 5 - PRODUCTION COSTS AND WAGES
394 Section I - Production Costs
426 Section II - Wages
446 Section III - Conclusions

Abstract

This study considers clay tobacco-pipe manufacture with specific reference to the industry in Bristol. As a background, the basic archaeological usefulness of clay pipes as a means to date sites is outlined, the introduction of tobacco to Europeans considered, and the various methods of tobacco-taking over the centuries examined. An extensive examination of clay-pipe manufacturing processes in France, The Netherlands, Belgium, Germany, Denmark, Sweden, Great Britain, and the United States of America is made of what is known about the history of the pipe industry in most of these countries is outlined. The pipemaking industries in five centres - Liverpool, Chester, Glasgow, Montreal, and East London - are considered in some detail as a means of noting aspects or features which might be encountered again and thus relate to the detailed study of the Bristol industry. A section is devoted to the scattered evidence from the C16 to C20 on production costs for clay pipes and wages earned by pipemakers.

The origins, rise, decline, re-emergence, and final demise of the Bristol clay-pipe industry is examined in detail in the light of documentary and archaeological evidence. Trends are noted from the apprenticeship rolls, burgess books, poll-books, and trade directories, and the interrelationships of the evidence are evaluated. Contemporary evidence in the form of C19 newspaper articles and an autobiography of a Bristol pipemaker of the later C18 are related to economic and social history evidence at a local and to some degree national level. The distribution of Bristol-made pipes at home and abroad is examined and mapped in detail. In the case of the former its relationship to the Broseley and Herefordshire industries to the north is considered; in the case of the latter, the manner in which it fitted the overall patterns of Bristol trade. Finally, the historical and socio-economic background of the C19 pipemakers' ghetto of St Jude's is discussed in some detail.

Submitted for publication 1977
by Iain C. Walker,
National Historic Parks and Sites Branch,
Ottawa

Abrégé

Cette étude traite de l'industrie de la fabrication des pipes en terre, par rapport à celle de Bristol en particulier. En guise de cadre, on explique l'utilité des pipes en terre au point de vue archéologique pour la datation des sites, on parle de l'introduction du tabac en Europe et l'on examine les diverses méthodes de consommation du tabac au cours des siècles. On étudie à fond les procédés de fabrication des pipes en terre en France, en Hollande, en Belgique, en Allemagne, au Danemark, en Suède, en Angleterre et aux Etats-Unis et l'on expose les faits connus de l'histoire de l'industrie de la fabrication des pipes dans la plupart de ces pays. On étudie d'assez près l'industrie de la fabrication des pipes dans cinq centres de fabrication: Liverpool, Chester, Glasgow, Montréal et Londres-Est, en vue de consigner certains aspects ou éléments qui pourraient se présenter à nouveau et se rattacher, par conséquent, à l'étude détaillée de l'industrie de Bristol. Une section est consacrée à des indications sur les coûts de production des pipes en terre et les revenus des fabricants de pipes, du XVIe au XXe siècle.

Les débuts, la montée, le déclin, la renaissance et enfin la ruine de l'industrie de la fabrication des pipes en terre de Bristol font l'objet d'une étude détaillée à la lumière de preuves documentaires et archéologiques. On relève les tendances indiquées par les registres des apprentis, les registres des bourgeois, les registres de scrutin et les annuaires commerciaux, et on évalue les rapports entre ces preuves. Des documents contemporains sous forme d'articles de journaux du XIXe siècle ainsi qu'une autobiographie d'un fabricant de pipes de Bristol de la fin du XVIIIe siècle sont reliés à des faits de l'histoire socio-économique au niveau local et jusqu'à un certain point, national. L'écoulement, dans le pays et à l'extérieur, des pipes fabriquées à Bristol, est étudié et signalé en détail sur des cartes géographiques. Dans le cas de l'écoulement intérieur, on examine les rapports avec les industries de Broseley et du Herefordshire dans le Nord; pour ce qui est de l'écoulement extérieur, on étudie comment il s'insère dans les structures générales du commerce de Bristol. Enfin, on expose en détail les antécédents socio-économiques des fabricants de pipes du ghetto de Saint-Jude au XIXe siècle.

Comme mentionné au chapitre 1, section III, une étude analytique des nombreux documents relatifs à l'usage du tabac en Angleterre et ailleurs s'impose. Le livre de Dickson Panacea or Precious Bane: Tobacco in Sixteenth Century Literature (1954) est un ouvrage savant mais porte presque exclusivement sur le XVIe siècle; un prolongement dans le même sens, englobant le XVIIe siècle pour l'Angleterre et l'Europe serait une mise à jour utile des ouvrages de Fairholt Tobacco: Its History and Associations (1859), Apperson The Social History of Smoking (1914) et Corti A History of

Smoking (1930, 1931). Ces trois derniers ouvrages, celui de Fairholt et surtout celui d'Apperson pour l'Angleterre, et celui de Corti pour l'Europe, cernent bien l'histoire sociale de l'usage du tabac, mais ce domaine particulier gagnerait probablement à être examiné à nouveau. Les diverses sous-sections de la section VII du chapitre 1 (méthodes de consommation du tabac) indiquent que la majorité de ces thèmes mériteraient une étude détaillée. En particulier, les faits entourant l'introduction de la cigarette et de la pipe de bruyère, qui ne remonte pourtant qu'aux années 1850, sont obscurs et appartiennent déjà à la légende. L'histoire de la pipe en écume de mer et de la pipe en porcelaine n'a pas été touchée.

Le chapitre 2 est l'une des parties les plus importantes de cette étude. Pour la première fois, on s'est livré à une étude approfondie sur la fabrication des pipes en terre en Europe occidentale et son expansion de l'Angleterre à la Hollande, puis à l'Allemagne, à la Belgique, à la France et aux pays scandinaves. Cela a abouti non seulement à des exposés détaillés sur les méthodes de fabrication utilisées par deux fabriques anglaises, deux fabriques allemandes, une fabrique hollandaise et une belge, mais une analyse de documents et de pièces de musée a révélé un grand nombre de faits jusqu'ici inconnus sur les techniques et les outils de fabrication. On n'a pu consulter quelques encyclopédies anglaises obscures, par manque de temps et à cause de difficultés d'accès; cela s'applique également au matériel similaire en langue française et l'on peut présumer de l'existence de sources hollandaises, allemandes et scandinaves qu'on n'a pu retracer. Cependant, on estime que cette étude sur les méthodes de fabrication et leur histoire est définitive. Il reste toutefois à entreprendre une étude poussée sur les argiles utilisées en Europe occidentale pour la fabrication des pipes (voir chapitre 2, section IX). Les pipes en terre à tuyau court d'Amérique du Nord (voir chapitre 2, section VIII) constituent à elles seules une industrie particulière qui n'a pas encore été étudiée à fond.

A l'origine, le chapitre 3 ne devait renfermer qu'un brève étude de base des industries de fabrication des pipes dans divers pays de l'Europe occidentale pour compléter les exposés sur les techniques de fabrication dans ces pays (chapitre 2) et pour fournir au lecteur une orientation générale. On l'a augmenté pour la principale raison qu'on s'est rendu compte que l'information provenait souvent de documents obscurs ou même inédits, et parce qu'on a estimé que cette section pourrait constituer un répertoire utile des données recueillies pouvant fournir un point de départ aux futurs chercheurs. Dans le cas de l'Angleterre, l'évolution rapide et constante des recherches dans le domaine des pipes devrait permettre d'arriver à une synthèse dans un avenir prochain, et effectivement, Oswald croit être en mesure de réaliser une telle mission avec l'aide d'un certain nombre de chercheurs engagés dans des études régionales (cela s'est récemment concrétisé - voir "preface"). La section I du chapitre 3 n'est donc qu'on bref compte rendu de quelques-unes des plus récentes conclusions des études auxquelles s'ajoutent des preuves non consignées jusqu'ici, rassemblées au cours des principaux travaux de recherche de cette étude, par exemple, ceux qui portent sur le matériel relié aux débuts de l'histoire de la corporation des fabricants de pipes de Westminster-Londres.

En ce qui a trait à l'industrie hollandaise (chapitre 3, section II), l'ouvrage d'importance est toujours celui de Helbers et Goedewaagen

Goudsche pijpen (1942), bien qu'il soit épuisé et devenu très rare, et qu'il ne traite que du centre de fabrication principal, c'est-à-dire Gouda. On n'y trouve non plus aucune illustration de fourneau et les divers articles de Friederich (1964a-d; 1970) ne forment pas une base satisfaisante pour tenter une typologie. Nous n'avons entendu parler d'aucun travail sur les pipes effectué par les archéologues hollandais bien que les pipes doivent abonder dans les sites et les épaves de l'époque postmédiévale en Hollande. Etant donné la présence fréquente de pipes hollandaises dans les sites historiques d'Amérique du Nord, une étude approfondie des documents se rapportant aux pipes hollandaises serait extrêmement utile.

A notre connaissance, rien n'a été fait en Allemagne (voir chapitre 3, section IV) au niveau de l'étude de la fabrication des pipes dans ce pays. L'industrie de Westerwald, qui semble avoir été la plus importante, n'a absolument pas été étudiée et l'on ne sait rien de ses origines à l'exception des déductions établies dans cette étude à partir de faits linguistiques et technologiques. Comme c'est le cas pour la fabrication des pipes ailleurs en Allemagne, les faits actuellement connus proviennent de références occasionnelles, en général de sources hollandaises. L'origine des pipes en terre Gottfried Aust à tuyau court, qui ont peut-être inspiré les pipes de cette forme fabriquées aux Etats-Unis (voir plus haut) est complètement obscure mais doit se trouver en Allemagne, ou du moins en Europe centrale, et ce domaine peut devenir un sujet de recherche distinct.

En Belgique (chapitre 3, section IV), Lefrancq a publié de bons articles préliminaires sur un ou deux aspects de la fabrication des pipes dans ce pays (1970a; 1970b), et l'on a bon espoir qu'il sera en mesure de produire les études approfondies qui ont fait défaut jusqu'ici et de publier sa longue liste de fabricants de pipes belges, du XVII^e^ au XX^e^siècle.

Après avoir ébauché la section traitant de l'industrie française (chapitre 3, section V), l'auteur l'a révisée pour y inclure les travaux de Jean-Léo publiés dans son livre Les pipes en terre françaises (1971). La plus grande partie de ce livre constitue un précieux catalogue raisonné et bien illustré des produits de la fabrique Gambier auquel s'ajoutent les catalogues d'un certain nombre d'autres fabricants, excellement reproduits. L'ouvrage ne fait pas tout à fait honneur à son titre puisqu'il ne constitue pas une étude définitive de l'industrie française de la fabrication des pipes en terre, mais il présente de nombreux faits qui nous étaient inconnus. D'un autre côté, l'auteur dispose d'une foule de données apparemment inconnues à Jean-Léo. La réunion de tout ce matériel, condensé dans la présente étude, pourrait permettre à quelque savant intéressé, d'entreprendre une vaste étude de l'histoire de la fabrication des pipes en France.

A notre connaissance, rien n'a été fait sur les pipes suisses depuis la publication, à la fin du XIX^e siècle et au début du XX^e siècle, des articles mentionnés au chapitre 3, section VI, dont la majorité tendait à démontrer que les pipes en métal extrêmement intéressantes utilisées à une certaine époque dans ce pays sont d'origine romaine ou semblable. Comme il est indiqué à la section VI du chapitre 3, ces pipes doivent être d'inspiration germano-hollandaise et remontent probablement à fin du XVII^e siècle et au XVIII^e, mais on ignore tout de leur histoire sociale, de leurs origines, de leur montée, de leur déclin et tout le reste, et il est évident qu'elles constituent un autre sujet de recherche important.

Par contre, les études scandinaves portant sur la fabrication des pipes en Norvège (Pettersen et Alsvik, 1944), au Danemark (Kristensen, 1959) et en Suède (Puktörne, 1968) laissent supposer que les petites industries de ces pays, aussi bien que le matériel de fabrication des pipes lui-même, ont été examinés efficacement. Jusqu'ici, les découvertes de pipes ont donné lieu à peu d'applications archéologiques mais Puktörne signale leur utilité lors des fouilles de Varberg et l'on peut s'attendre à d'autres rapports de découvertes de pipes.

Dans l'ensemble donc, on peut se rendre compte que l'industrie de la fabrication des pipes en Hollande, en Allemagne, en Belgique, en France et en Suisse mériterait bien une enquête étendue.

Le chapitre 4 a été rédigé pour déceler les éléments répétitifs discernables dans les brèves études sur divers centres de fabrication de pipes et pour voir comment ils pourraient se relier à l'étude détaillée de l'industrie de Bristol. Comme la section VII du chapitre 4: "Conclusions", l'indique, cela c'est avéré profitable. En outre, on a recueilli et présenté ici une quantité considérable de données, reliées en particulier au commerce en Amérique du Nord ou avec l'Amérique du Nord et, par conséquent, difficules d'accès pour les lecteurs britanniques, dans l'espoir de constituer une source utile pour tous ceux qui seraient intéressés à se lancer dans des études poussées sur la fabrication des pipes dans n'importe lequel des centres mentionnés. L'industrie de Liverpool (section II, chapitre 4) n'a encore fait l'objet d'aucune étude, et bien qu'on trouve dans G.C. Spence (1942) un exposé étendu sur les fabricants de Chester de même que quelques dessins de marques, il reste toujours à étudier les formes de fourneau, la datation ainsi que l'origine des tuyaux abondamment décorés des pipes de Chester, sans compter le commerce d'exportation (voir chapitre 4, section III). La question de savoir si c'est de Liverpool ou de Chester que vint l'idée de faire mouler sur le tuyau le nom du fabricant ainsi que le lieu de fabrication, reste également sans réponse. (Malheureusement, R. Wilson, qui travaillait sur l'industrie de Chester, est mort en 1968.) On a étudié de plus près de cas de Glasgow, principal fournisseur de pipes en terre pour l'Amérique du Nord au XIX^{e} siècle (chapitre 4, section IV), et l'on a établi une liste de 107 fabricants et fabriques de pipes de Glasgow, en particulier du XIX^{e} siècle voir l'annexe VII). Cette information devrait se révéler d'une grande utilité pour les archéologues en Amérique du Nord, mais peut également inciter à une étude plus détaillée de l'industrie de la fabrication des pipes de Glasgow ou du commerce de Glasgow avec l'étranger au siècle dernier. L'industrie de Montréal (section V, chapitre 4) est particulièrement intéressante du fait qu'elle fut établie par des immigrants irlandais dont la venue au Canada résultait directement de la famine causée par la pomme de terre qui avait sévi en Irlande dans les années 1840; la migration partielle vers Detroit dans les années 1870 est un exemple intéressant de déplacements en masse de commerces et de familles, vers un lieu très éloigné, dans l'espoir d'établir un marché meilleur. La consommation du tabac en Ecosse et en Irlande et ses ramifications socio-économiques constituent des thèmes d'étude particuliers.

Bien que les données présentées au chapitre 5 soient rudimentaires à plusieurs points de vue, elles sont très importantes en ce qu'elles englobent des renseignements sur les prix et les revenus au cours d'une très longue période et pour la majeure partie du pays, ce qui n'avait pas encore été fait, en tous cas pour des objets comme les pipes. Des indications ont permis de formuler quelques observations sur la situation sociale et économique des fabricants de pipes, en particulier du XIX^{e} siècle, au cours duquel l'industrie de la fabrication des pipes se trouvait dans une position économique désastreuse. Il est à espérer que certains éléments du matériel rassemblé seront utiles aux historiens qui oeuvrent dans les domaines social et économique.

L'industrie de la fabrication des pipes de Bristol est étudiée au chapitre 6, et constitue le travail de recherche majeur de cet ouvrage. En combinant une grande quantité de documents inédits ou non étudiés, par exemple les registres des apprentis, les registres des bourgeois, les registres de scrutin et les annuaires commerciaux, avec des données d'enquêtes archéologiques et du matériel de musée portant sur une grande partie de l'Angleterre et sur toute l'Amérique du Nord, on a constitué un schéma cohérent des origines, de la montée, du commerce, du déclin et de l'histoire sociale avec un souci de détails qui n'avait pas été atteint jusqu'ici dans les études sur la fabrication des pipes. Il a été particulièrement satisfaisant de voir des éléments indépendants concorder les uns avec les autres. Par exemple, les registres des apprentis et des bourgeois indiquent une brusque réduction de l'importance de l'industrie vers 1740, et ceci concorde avec des preuves archéologiques d'Amérique du Nord établissant que l'industrie a connu son apogée dans les trente premières années, ou à peu près, du XIX^{e} siècle, de même qu'avec les déductions tirées des registres de scrutin. L'auteur a particulièrement goûté les réminiscences de Bryant (1787) et le compte rendu de 1850 sur la pauvreté d'un fabricant de pipes de Saint-Jude paru dans un numéro de l'Examiner, sans oublier des notes occasionnelles d'humanité, d'humour, de même que celles sur la grivèlerie et la corruption. Les pipes du musée de la ville de Bristol (dont la présence résulte de la rénovation urbaine du début des années 1960 dans la rue Lamb, à Saint-Jude), marquées sur commande de la manière décrite par la fabrique T.J. Corcoran de la rue Lamb dans son annuaire publicitaire de 1892, sont très certainement des produits Corcoran et donnaient de la vie à l'annonce. Elles ont également révélé, de façon inattendue, que les pipes de Bristol étaient écoulées en des endroits éloignés tels que Swansea et Plymouth dans les années 1890, ce qui est surprenant étant donné que l'industrie était alors presque morte.

Un examen des inscriptions portées dans les registres des apprentis et des bourgeois, par période, a établi des modèles révélateurs du déclin progressif du contrôle des corporations et les rapports généraux de l'entrée en apprentissage et la reprise de la liberté, la majorité de ces éléments concordant avec l'étude de Rogers sur les corporations de Bristol (1949) tout en les modifiant occasionnellement. Une analyse des professions des pères des apprentis a fourni dans le domaine social, des constatations utiles; l'examen de la zone d'origine de leurs ancêtres a également contribué à l'établissement de faits sociaux utiles. Dans la mesure du possible, on a comparé les faits de cette nature avec des faits semblables s'appliquant à d'autres groupes sociaux, à Bristol et ailleurs en Angleterre.

L'étude des structures commerciales existant dans le pays et à l'étranger, telles qu'elles ont été révélées par des preuves archéologiques et du matériel de musée, s'est avérée particulièrement intéressante en ce qu'elle a permis de constituer un cas valable pour Bristol, déjà un port établi, ayant de plus en plus tendance à se spécialiser dans certaines activités commerciales outre-mer, puis se spécialisant progressivement dans l'exportation des pipes vers l'Amérique du Nord au cours de la seconde moitié du XVII^e^ siècle, et cessant d'approvisionner le marché assez important de l'arrière-pays, en particulier la région située au-delà du Bas-Severn et de ses affluents de la rive ouest, marché qu'elle avait alimenté au début et jusqu'au milieu du XVII^e^ siècle.

Il était également évident que lorsque l'industrie de Bristol se releva au début du XIX^e^ siècle après avoir sombré dans les années 1760-1770, ce fut sous une génération de fabricants qui semblent n'avoir aucun lien historique avec l'ancien régime des XVII^e^ et XVIII^e^ siècles. La démolition, ces dernières années, de la quasi-totalité des vieux bâtiments de la région de Saint-Jude, aussi bien que l'impossiblité, à cause d'un manque de temps, d'étudier la volumineuse documentation relative à la région, et qui consiste en actes de propriété et autres documents de même nature, ont empêché la poursuite d'une étude approfondie de l'histoire sociale de la région au XIX^e^ siècle, mais on a recueilli assez de faits pour démontrer la pauvreté extrême et chronique dans laquelle devaient se trouver les fabricants de pipes, même à l'apogée de l'industrie au siècle dernier (dans les années 1840 et 1850), sans parler de l'époque de la ruine de l'industrie, dans les années 1860.

Enfin, on trouve à l'annexe IX, un recueil de 705 fabricants et fabriques de pipes de Bristol ainsi que des croquis de leurs produits en aussi grand nombre que leur identification le justifie. Cela devrait se révéler très utile pour les archéologues en Angleterre et en Amérique du Nord, particulièrement en Amérique du Nord compte tenu de l'ampleur du commerce des pipes de Bristol dans cette partie du monde. A titre d'archéologue oeuvrant dans les sites historiques depuis 1962, l'auteur estime qu'il s'agit là d'une section clé car elle a servi à élaborer une grande partie de l'histoire économique traitée dans ce chapitre.

Acknowledgements

It is easy to express thanks verbally at the time; less easy to compose a written list of all those who have, over a period of years, contributed in a wide variety of ways to the study that follows.

The origins of this study date back to 1962 when the writer, with a degree in prehistoric European archaeology, emigrated to Canada to become Staff Archaeologist involved with the restoration of the C18 French Fortress of Louisbourg in Nova Scotia and picked almost accidentally on clay tobacco-pipes as being a topic of moderate ease on which to establish some work to justify his change from prehistoric to historical archaeology.

Five years later, with the idea of pipes as a topic of moderate ease long since shattered, the writer was awarded a Canada Council Doctoral Fellowship to pursue these studies at the University of Bath. To J.L. Cotter, then Regional Archeologist with the Northeast Region of the National Park Service, United States Department of The Interior, Philadelphia; to E.McM. Larrabee, then Senior Archaeologist with the Fortress of Louisbourg Restoration Section of the National Historic Parks and Sites Branch of the Canadian government's Department of Indian and Northern Affairs; and to the late H.G. Omwake of the Delaware Archaeological Society I am deeply grateful for recommendations which enabled me to win the Fellowship, and to Mr Larrabee must go an additional debt of thanks for allowing me to continue work in an environment not always ideal for research (cf Larrabee 1971). Thanks must also go to my present employers, the Research Division of the National Historic Parks and Sites Branch of the Department of Indian and Northern Affairs in Ottawa, for granting two years' educational leave on part-pay to study at Bath (1967-69) and for their tolerance of continued part-time work amid the usual welter of paperwork involved in what became a full-time desk job. In particular, they were responsible for providing typing and production services, and undertook the publication of the thesis in the form which follows.

To mention all those who assisted the writer during his research in Britain and since his return to Canada would be a monumental and probably impossible task. The list of over 240 personal communications in the bibliography of this thesis [almost 320 by the end of 1975] is sufficient proof of the debt owed to fellow-workers on four continents, and I trust all those who find their name listed there or mentioned in the body of the text will accept this as sincere acknowledgement for their generous help. It would be invidious to single out any of these for special mention, yet it would be impossible not to note A.H. Oswald F.S.A. and the late H.G. Omwake who over the years have so generously supplied me with information from their vast store of knowledge and to whom I owe all my background knowledge on the subject; and of the others perhaps L.T. Alexander, D.R. Atkinson F.S.A., G. Hagerty, M.-G. Lefrancq, J.H. McCashion, and P.K. Wells have been particularly generous with their knowledge.

All researchers of Bristol history owe a vast debt to the

recently-retired City Archivist, Miss E. Ralph F.S.A., who with Miss M.E. Williams, the present City Archivist, and Mrs S. Lang were unfailingly helpful in providing archival and other source material. Miss Williams in particular answered patiently a protracted series of queries typical of the sort of problems arising after 1969 when the writer was 3,000 miles away from his material. The staff of the Bristol Public Libraries were similarly patient with the same sort of time-consuming queries. At the City Museum L.V. Grinsell F.S.A., M. Hebditch, Miss J.D. Lillico, and M. Ponsford allowed me full access to the museum's extensive pipe collections and provided much other information. R. Barrett, the Archivist at W.D. and H.O. Wills, was equally helpful with the rich collection of Bristol and other pipes held by that company in its private museum. For material included in the updating of this work for publication I am additionally grateful to R. Price of the City Museum and R.G. Jackson, who generously gave me information on exports of Bristol pipes during the later C18 and early C19 from their then-unpublished book and who also supplied other information.

In London Mrs M. Tatchell was of great assistance in checking documentary material available only in the British Museum, the Guildhall Library, and the Society of Genealogists' Library.

Of the 84 museums and private collections covered only two were less than helpful, and many were helpful beyond all normal call, generously sending pipes, or photographs specially taken, or drawings, or comprehensive descriptions, and thereby obviating expensive travel on my part. Others went out of their way to find relevant data, while some provided meals and accommodation - a particularly gracious afternoon tea at Topsham comes to mind. To the staff of these museums I offer my sincere gratitude for their asistance which contributed immeasurably to the successful completion of the gigantic task of covering nearly 100 collections.

I should also like to thank the following European museums for their co-operation during study tours there: in France the Musée du Tabac, Bergerac, and the Hôtel Sandelin, Saint-Omer; in Belgium the Musée de la Céramique, Andenne, the Museum voor Folklore, Antwerp, the Museum voor Volksunde, Ghent, the Musée de la Vie Wallonne, Liège, and the Musée de Folklore, Tournai (even though they insisted on charging me admission); in The Netherlands the Niemeyer Nederlands Tabacologisch Museum, Amsterdam, the Museum "De Moriaan", Gouda, and the Pijpenkamer of the Douwe Egberts Tabaksmaatschappij N.V., Utrecht; and in Iceland the Thoðminjasfn Íslands, Reykjavík.

The section on pipe-manufacture owes a great deal to R.G.A. Hemming and the staff of C.B. and McDougall Ltd of Glasgow; to G. Pollock and the staff of John Pollock and Co of Manchester; to C. Southorn of Broseley; to A. van der Want and the staff of the Zenith Plateelbakkerij en Pijpenfabriek of Gouda; to R. Simonis of Hilgert; to the Wilhelm Klauer Söhne K.G. Baumbach; and to E. Léonard of Andenne, all of whom were most generaous in allowing the writer and his wife unlimited time and facilities to record both photographically and in note form their manufacturing processes and equipment. To H. de Friend of the Gasthaus zur Guten Quelle at Hilgert and to R. Garant of the Musée de la Céramique at Andenne go many thanks for acting as guides in the Westerwald and at Andenne respectively, and to Mr and Mrs A. van der Want of Gouda must go especial gratitude for their hospitality during our stay in Gouda.

At Bath University R. Robinson of the Library consistently produced miracles in the way of locating and obtaining on inter-library loan many recondite British and European journals and books, while my supervisor of studies R.A. Buchanan showed rare patience with the protracted preparation of a work which I am sure he (and for that matter I) thought at times would never be finished.

In Ottawa the Department of Indian and Northern Affairs Library has been of great help in continuing the quest for esoterica and obscure references and particularly in the frustrating job of checking references; here my unrelated namesake Mrs C. Walker and Mrs S. Dupuis and Miss J. McNiven have been outstandingly helpful in locating material. The General Multilingual Section of the Secretary of State Department's Translation Bureau, Multilingual Services Division, has been unfailingly co-operative in helping with much technical terminology involving half the languages of Europe, and I would particularly like to thank P.H. Barkema, Head of the General Multilingual Section, and E.G. Gerridzen for their assistance. Within the Research Division of the National Historic Parks and Sites Branch in Ottawa Mrs N.B. Stoddard and Mrs J. Brathwaite of the editorial staff offered much advice on improvement of style for the manuscript; some of this has been included. Mrs E. Richard did the final typing of virtually all of the thesis manuscript save for Appendix IX, the Bibliography, the Acknowledgements, and the illustration captions; and Mrs S. Bowerman typed the remainder of the manuscript in its final thesis form. Miss B. MacIntyre did much of the earlier drafts. Mrs S. Bowerman retyped almost all the updated version now published, making her probably the second-most knowledgeable person on pipes in North America.

In this published version the photographic illustrations were printed by J. Jolin and G. Taudien; S. Epps drew figs 120, 146-48, 152-55, and 159-66; Miss D. Kappler drew figs 1, 3-7, 105, 129, and 157; and D. Ford, Mrs J. Mousette, and Miss Kappler among them drew fig 156 and the pipe drawings in Appendix IX. A.S.R. MacGregor of Xerox Canada provided copies of some particularly large-sized illustrations.

Sources of illustrations other than photographs in this writer's collections are given at the end of the caption, and I should particularly like to thank the following individuals and organizations for permission to reproduce illustrations without payment: D.R. Atkinson for figs 3, 4, and 157; J.H. McCashion for fig 121; I. Noël Hume for figs 6a, 6b, and 7; A. Oswald for figs 1, 2, and 119; E. Parsons for fig 5; T. Puktörne for fig 129; Miss E. Ralph, Miss M.E. Williams, and E. George for figs 148a and 148b; Bristol Churches Tenements Association Ltd for fig 190; Bristol City Mission for figs 192 and 193; City of Edinburgh Museums for figs 69-72; City Museum and Art Gallery, Bristol, for figs 11, 169-73, 183-84, and 208; City Museums and Art Gallery, Birmingham, for figs 84, 87, and 94; Courage (Western) Ltd, Bristol, for figs 219 and 220; Department of Indian and Northern Affairs, Ottawa, for figs 8 top, 8 btm, 9-10, 36, 117, 122, 128, and 158; Firma P.J. van der Want Azn Zenith Plateelbakkerij en Pijpenfabrieken of Gouda for figs 23 and 39; Nuneaton Museum and Art Gallery for fig 112; Nyt Nordisk Forlag - Arnold Busck A/S of Copenhagen for fig 105; Sprog og Kultur of Århus for figs 58-60; Theodorus Niemeyer N.V. of Groningen for fig 20; and the Ulster Folk and Transport Museum for figs 61-67. In one or two instances it has proved impossible to trace a copyright holder (if one exists): apologies are offered for any unintentional omissions, and corrections will be made if necessary in any future edition.

Of the remaining illustrations, the Frontispiece and Figs 21-22, 24-35, 37-38, 40-56, 68, 73-83, 85-86, 88-93, 95-104, 107-110, 113-16, and 123-27 were taken by my wife Sansoucy Walker and Figs 106, 111, 130-40, 149-50, 179-81, 185-86, 188-89, 191, 194-204, 215-18, and 221 were taken by the writer. Permission to reproduce any of these illustrations should be obtained from the writer.

Lastly, I should like to sincerely thank my wife for putting up with me most of the time during which this outrageously-long epic disrupted our lives (namely, 1967-76).

Preface

In October 1973 the writer submitted for the degree of Ph.D. from the University of Bath a thesis whose size was exceeded only by the length of its title - Aspects of the Clay Tobacco-Pipe Industry from the Point of View of the Manufacturing Techniques and of the Changing Patterns of Trade and Smoking, and with Particular Reference to the Industry in Bristol. The present work, which adopts the short title the university requests be impressed in gold leaf on the cover of its theses, is a partly revised and updated version of this work. In its original size it has already made a modest claim to fame, being the direct cause of the university's placing a strict upper limit on the size of theses. As to its present, larger, size, the writer can only plead hopefully with Horace brevis esse laboro, obscursus fio.

Various problems combined to prevent the publication of this work immediately after its acceptance by the university, and in an effort to confound the parable about the perils of sewing a piece of new cloth on an old garment the writer endeavoured to keep the work up to date pending some definite decision about is publication. As noted in the Introduction to the Bibliography in the original, the thesis drew on all material available to the writer up to June 1972 and on a number of sources available between that date and December 1972: this published version has incorporated references available to the writer up to October 1974 and a decreasing number available up to December 1975.

Because of deadlines, however, one major unpublished source of information, the manuscript known for convenience as the Bristol Pipemakers' Guild Book (though as will be discussed later it is in fact largely a jotter of apprenticeship and freedom entries) first come across shortly before the original thesis was submitted has had to remain largely unused. A number of references to it have been included, mostly in the first half of this study (that is, Chapter 1 to 5), but time was not available for the long and painstaking task of checking all the apprenticeship and freedom records in the "Guild Book" against those in the Bristol Apprenticeship and Burgess Rolls, the official city records of apprenticeships and freedoms. Although the internal evidence of the guild book entries indicates that they, like the Apprentice and Burgess Roll entries, are not the originals - there is evidence that the Rolls were made up from some original source, either a jotter or scraps of paper, and the same sort of evidence, such as blanks left for dates or names to be inserted later for example, is found in the guild book - a number of entries not found in the Apprentice and Burgess Rolls, whether omitted from the latter or overlooked by this writer, are listed in the Guild Book. In some cases these entries supplied otherwise unknown information on a pipemaker known to have taken his freedom later. More interestingly, there were entries where a number of guild members had signed, and these sometimes gave very useful dates for these pipemakers being active appreciably later than any other sources used by this writer. A particularly interesting example of this is the case of Isaac Evans free 1698, whose only later reference known to this writer when writing his thesis was in 1700/1. On the basis of Evans products, this writer suggested (repeated in the present work) that Evans must have continued working considerably later, perhaps as late as the 1720s: in fact the Guild Book notes him as Master of the Bristol pipemakers' guild apparently in 1710 and has other references to him at this period, and research by a Bristol archaeologist, R.G. Jackson, has provided references to Evans's will being signed in 1712 and proved in 1713, which provides a close approximation for the date of his death. Entries of the greatest interest in the Guild Book are a resolution of 1710 on the sizes of moulds for various pipe styles (discussed in the present work) signed by presumably all pipemakers at that time, and several other, later, resolutions also signed by members of the period.

The Guild Book in fact covers only part of the C18: the first entry is in 1709 and the last guild entry in 1766, though the book was used variously as a diary; as a notebook for items on Bristol history; as a jotter for various "receipts" designed to cure piles, gout, bile, and other ailments as well as poison rats; and from at least 1790 as a household-book by the Joseph Edwards pipemaking family. Some of the accounts deal with the pipemaking business, others with other interests (including the Charity School for Girls in the Parish of Temple) and household accounts. The latest entry noted is one of 1823, the last year in which Joseph Edwards jr is recorded. Joseph jr may have inherited the Book from his father Joseph sr, who became free 1747 and was recorded in 1792 but had apparently died by 1794 (Joseph jr became free 1774). It is possible that Joseph sr may have been one of the last guild officers and kept this Book on the demise of the guild - as noted in the present study, the Bristol pipemaking industry almost died in the last quarter of the C18. The Guild Book is at present in private hands, though a photographic copy is in the Bristol archives; the present owner can add nothing to its history except that it had probably been bought by his grandfather in Bristol. One wonders what other items of the guild Joseph Edwards jr may have had and what eventually became of them.

Although the present work does not make much use of this Book, its contents have been used by Jackson and Price in their recent monograph Bristol Clay Pipes: A Study of Makers and their Marks (Bristol City Museum: Research Monograph No 1; 1974). The authors have also included additional dating evidence for some makers from wills and other documentary sources, and their entries for Bristol makers should be compared to the entries in the present work and the latter updated if necessary (for example, Flower Hunt in his 1671 will proved in 1672 mentioned a son William not otherwise known who may possibly have been the maker in the William Hunt-marked pipe from Taunton noted in this work, though if so he must have left Bristol and sought his fortune elsewhere). However, while the writer has not systematically checked the Jackson and Price entries against his own, there appear to be discrepancies as well as additional facts: the 1722 will identified as that of Robert Tippet III, for example, appears to be that of Robert Tippet II, who had married again, for the 1700 Rent Book entry quoted by Jackson and Price as noting Robert Tippet II mentions a daughter Sarah married to James Anderson, a linen-draper, and the will said to be that of

Robert Tippet III mentions a son-in-law James Anderson (and a granddaughter Sarah Anderson) which indicates that the Rent Book entry and the will must refer to the same person. The problem of who produced the Robert Tippet-marked pipes into the 1760s (discussed in this work) has no light shed on it by Jackson and Price's research.

Mention should also be made of two important new works dealing with British pipes published recently. One is David Atkinson's study of Broseley pipes mentioned in this work as being in press. This has finally been privately published by the author as Tobacco Pipes of Broseley, Shropshire (1975). The other is Adrian Oswald's Clay Pipes for the Archaeologist (British Archaeological Reports 14; 1975), which has an up-to-date list of British pipemakers and much new discussion. It also makes use of this writer's thesis, and thus makes a much more readable source for pipe research than does the present epic.

At the risk of being criticized for self-advertisement, there is also a useful recently-published paper by this writer entitled "The Potential Use of European Clay Tobacco Pipes in West African Archaeological Research" published in the West African Journal of Archaeology vol 5 (1975) 165-93. This is to some extent a resume of this writer's Ph.D. research (the same issue also has another article of interest on pipes, "European Trade Pipes in Ghana" by D. Calvocoressi, pp195-200).

In conclusion, it is this writer's hope that the publication of this work will provide a major source for future clay pipe research and that while details here will inevitably be proved wrong (as indeed some already have been) the bulk of the work will remain useful for a considerable time to come and that the ideas put forward will stimulate other researchers and the data collected will form the base of new studies.

January 1977

Abbreviations

A	apprenticed
A-O	Atkinson and Oswald
Arch. Rev.	*Archaeological Review*, Bristol
B	born
BAO	Bristol Archives Office
BARG	Bristol Archaeological Research Group
BCM	Bristol City Mission
BIAS	Bristol Industrial Archaeological Society
CBA	Council for British Archaeology
COWA	Council for Old World Archaeology
D	died
DAE	*Dictionary of American English*
DNB	*Dictionary of National Biography*
DRO	Dorset Record Office
Enc. Brit.	*Encyclopaedia Britannica*
F	free
fl	flourished, flourishing
HBRS	*Hudson's Bay Record Society*
LCC	London County Council
M	married
NMAS	National Museum of Antiquities of Scotland
N&Q	*Notes and Queries*
OED	*Oxford English Dictionary*
OS	Ordnance Survey
O.S.	Old System (in dates)
PMA	*Post-Medieval Archaeology*
PRO	Public Record Office
PSAS	*Proceedings of the Society of Antiquaries of Scotland*
RCHM(E)	Royal Commission on Historical Monuments (England)
SA	*Statistical Account of Scotland*
SPD	*State Papers Domestic*
Third SA	*Third Statistical Account of Scotland*
VCH	*Victoria County History*

CHAPTER 1

BACKGROUND

SECTION I:
INTRODUCTION

The application of archaeology to the study of the recent past is still a new phenomenon. This is not to say that relatively recent sites have not been excavated in the past, or that relatively recent cultural material - ceramics, glass, and metal - has not been studied, but it is fair to say that until recent years the excavation of such sites generally involved little more than the uncovering of ruins often considered adequately documented from historical sources, while the study of cultural material was a slightly esoteric pastime of people whose interest was in the artistic qualities of the objects and not in the study of man which is the fundamental object of history. That this attitude is not dead can be seen in the 1961 presidential address to the Society of Antiquaries of London by Dr Joan Evans, who deplored the fact that the younger school of British archaeologists was more interested in "plans of cow-sheds and a series of sections of the rims of cooking pots" than in taking "the more aesthetic and civilized approach" of the art historian (Dr Evans herself being an art historian) to "historic and well-documented sites" (J. Evans 1961).

In recent years, however, the application of archaeological techniques to post-Roman sites in Great Britain and post-Columbian sites in North America - that is, scientific excavation and the interpretation of the finds using an interdisciplinary approach - has shown that archaeology can add a new dimension to the study of the recent past. Thus in Great Britain the Society for Medieval Archaeology was founded in 1951, the Society for Post-Medieval Archaeology in 1967 (growing out of the Post-Medieval Ceramic Research Group founded in 1963), and the field of industrial archaeology - albeit with little interest in the excavation of sites so far - has been served by an annual conference since 1964 and by a journal which started in the same year, though a national organization has been very slow in appearing agreement to form the Association for Industrial Archaeology being forthcoming only in 1973. In North America an annual Conference on Historic Site Archaeology has met since 1960 and the Society for Historical Archaeology was formed in 1967. The Society for Industrial Archeology (sic) was founded in 1971 largely, one fears, because a quite pointless attack on the concept of industrial archaeology by a then-leading member of the Society for Historical Archaeology, an anthropologist, made it apparent to American industrial archaeologists that they[1] were less than welcome in that society (Foley 1968; Vogel 1969; Foley 1969). Excavation, however, has been only slightly less rare among American industrial archaeologists than among their British counterparts. As a general rule one may subtract five to ten years from these dates to obtain an idea of when those actively interested in these fields first began to consciously feel the need to form a group to foster their interests.

It is, of course, easy to over-emphasize the contribution of archaeology, in the sense of excavation or other fieldwork, to history. Harrington, one of the pioneers in the field of historical archaeology in the United States, has rightly said (1955b: 1124) that excavations of historical sites have made relatively little contribution to history but a considerable contribution to historical data. This writer would go so far as to say that this is probably the most that excavation will ever be able to do. It is the synthesis of this evidence with other material that constitutes living history.

The study of cultural remains, as already noted, has been in the past all too often a field where noble silverware, beautiful glassware, and exquisite porcelain replaced pewter, wine bottles, and coarse earthenware. The result has been until recently an appalling lack of reliable works on much of the everyday material found by excavators of medieval or post-medieval sites - on some of the material even yet little exists; in other aspects, material may still be mis-ascribed or misdated.

To an archaeologist the most valuable material is that which enables him to make meaningful deductions and not that which is aesethetically pleasing (which latter would have to be found in undamaged condition, an extreme rarity on most excavations).[2] Perhaps the most immediately useful item found on C17 and later sites has been the clay tobacco-pipe, for it has proved possible, as a result of recent studies, to obtain unusually accurate dating for these objects, which are sometimes the most common single item found on recent sites.

The most important features about the clay pipe are its fragility and its ubiquity, the latter being in some degree related to the first. The clay pipe is a fragile, cheap, utilitarian object - its length of use is therefore short and its rate of replacement rapid, unlike items which lasted longer because they were stronger or more expensive to replace, or items of value or beauty, or items which were heirlooms. For example, an individual arrested in 1661 and describing the guardroom where some of his captors were smoking recorded "In the chimney of the room I believe there was [sic] two bushels of broken tobacco pipes, almost half one load of ashes" (quoted in Fairholt 1859: 115),[3] an observation which helps explain the vividness of the Flemish saying het regent pijpestelen - it's raining pipestems (Ons Heem 1963: 181 s.v. Folklore van de puupeclub). Bain (1896: 77-8) says that when Tennyson smoked clay pipes last century he had a large box of them in front of him from which he took one, filled it, smoked it empty, and then broke it in two and threw it into another box laid out to receive the fragments.[4] He would then take a second pipe and smoke it likewise, never using one a second time. Again, a household book of Charles Warton who lived near Kingston upon Hull in the time of Queen Anne indicates that he bought 1,000 pipes in a five-year period, suggesting an average use, doubtless including those for guests, of four pipes a week. (There is also evidence that he had some refired, which cleaned them, after use (Sheppard 1902: 4-5, 2nd ed 1912).) Hallgarth (1969: 34) notes that short-stemmed cutties were a great favourite with Grimsby fishermen, who would take 2-3 dozen with them on a fishing trip. As late as 1926 a woman in Hanley, Stoke-on-Trent, who was almost 100 years old, bought Churchwarden pipes regularly every week - and almost used three oz of tobacco a week (Warrillow 1960: 239).

The western European white clay pipe has turned up on sites from Alaska (Barnett and Schumacher 1967: items 227, 244, and 541; Ackerman 1968: 32, fig 12,5; VanStone 1968: 296; 1972: 68-9, 65 pl 13,5) to Arizona (Fontana *et al* 1962: 95-6, 65 illus.); from Labrador (Bird 1945: 143, fig 14) and Hudson Bay (Zacharchuk 1973: 15) to Guadeloupe in the French West Indies (Clerk *in litt.* 10 November 1967), Guyana (former British Guiana) in South America (undated clipping of letter in a January 1975 issue of the Edinburgh *Evening News*), and Ascension Island (Lefrancq *in litt.* 9 March 1972); from the Sudan (Oswald 1960a: 48) to Ghana (Nunoo 1957: 16-17, Pl III; Calvacoressi; MS) to a shipwreck off Cape Town (Oswald *in litt.* 15 July 1971); from Poland (Rutkowska and Żaryn 1955; pls 37-8) to the Faeroe Islands (Føroya Fornminnissavn [Faeroese Museum of Antiquities] Tórshavn, *in litt.* 3 November 1971) to Iceland (Thjóðminjasfn Íslands [National Museum of Iceland] Reykjavík, *in litt.* 2 December 1969; material seen by this writer 17 November 1971) to Spain (Ríos 1913: 279-83); from Australia (Pretty *in litt.* 28 February 1968; Allen *in litt.* 11 and 18 March 1968; Allen and Macknight *in litt.* 29 March 1968; Bickford *in litt.* 12 July 1969; McBryde *in litt.* 29 March 1971) to New Zealand (Atkinson and Oswald 1969: 205) to Easter Island (Oswald *in litt.* 2 January 1969). Literary and documentary sources indicate their export to Italy (Douwes 1964: 367; Coolen 1970: 400), Russia (Corti 1930: 175-6, 1931 ed; Helbers and Goedewaagen 1942: 18), South Africa (Anonymous 1921a; Berry 1963: 4), South America (Coolen *loc. cit.*; Jean-Léo 1971: unnumbered illus. in end section showing Job Clerc advertisement), and Japan (Voisin (ed) [1950]: 14th page).

Clay pipes, like many other items, evolve typologically - size, shape, decoration, and many other features change in response to a variety of causes. From the recovery of pipe-fragments in datable contexts; from the records of pipemakers in parish registers, apprentice rolls, freedom rolls, guild papers, census returns, poll-books, trade directories, from contemporary illustrations, and many other sources; from the application of evidence gained by these means to material in other archaeological contexts not otherwise datable; from, to borrow E.H. Carr's definition of history, the "continuous process of interaction between the historian and his facts, [the] unending dialogue between the present and the past" (Carr 1961: 30, 1964 ed); from all this evidence a picture of the typological evolution of the clay pipe has gradually emerged - largely due to the pioneering work of A.H. Oswald - over the past 20 or so years. A discussion of English pipe typology appears in Section II(a) below.

As a result of Oswald's studies towards his typologies, some of which produced articles included in the sources listed in this thesis, a list of some 3,400 known pipemakers in England had been collected, and this, the vade mecum of all those who work in the field of recent archaeology so far as pipes are concerned, appeared in 1960 (Oswald 1960a; re-issue with updated bibliography but unchanged text 1967).

Prior to Oswald's 1960 paper, a study of the distinctive Broseley industry had appeared (Oswald and James 1955a; 1955b). Subsequently, as the field of post-medieval archaeology expanded and the value of clay-pipe studies to the field became appreciated, other area studies - either of the industry of an area or of pipes found in an area - appeared, some dealing with regional typologies. Here the work of D.R. Atkinson has been particularly important. Studies of the kind outlined have appeared for London (Atkinson 1962a; 1965a; Atkinson and Oswald 1969); Sussex (Atkinson

1958; 1962b; 1964a; 1964b; 1965b; 1966; 1967; 1968; 1970b; 1972e); Marlborough (Atkinson 1965c, rev ed 1969b; 1973) and Salisbury (Atkinson 1971; 1973) in Wiltshire; Shaftesbury (Atkinson 1970c) and Dorchester E. Watkins 1966) in Dorset; Bath (M.B. Owen 1967; Brown and Sneddon 1973; Brown and Brown 1974); Boston (P.K. Wells 1970; 1972) and Lincolnshire (P.K. Wells 1974); Nottingham (Alvey 1973); SW Yorkshire (Lawrence 1974); and the North-East (Parsons 1964). A study of the Broseley industry by Atkinson is at present awaiting publication, and studies by Atkinson of Southampton and Portsmouth pipemakers and by Atkinson and R.H. Cooper of Winchester pipes are in preparation. In the New World, I. Noël Hume (1963: 262 fig 105; 1970c: 303 fig 97) has produced a typology of pipes found in the Colonial and post-Colonial eastern United States. A re-examination and reconsideration of the field by Oswald in the light of ten years' accumulated evidence since his 1960 paper appears in 1970b.

The Oswald material, both his typology and his list of makers, is strongest in its application to southern English pipes; the work by Parsons in NE England, where he found 264 makers compared to 17 listed by Oswald in 1960, is a fair indication of the amount of regional research still needed in certain parts of England, especially in the north. Indeed, in Scotland, there has been no published work on pipemakers at all. In 1970 Oswald could say (1970b: 226, 233) ca.6,000 makers were now known compared to the ca.3,400 of ten years earlier, and this excluded most Scottish, Irish, and NW England makers and was still being added to almost daily. It is fair to say that distribution maps showing density of pipemakers still reflect spheres of archaeological activity as much as those of pipemaking activity (cf the hitherto-unknown industry in the period 1697 to at least 1713 at Whitehaven in Cumberland and incidental references to an unsuccessful earlier attempt to start pipemaking there - Weatherill and Edwards 1972: 161, 168-9).

Works on local pipe industries, or on pipes found in local areas, had, of course, appeared much earlier than Oswald's study - 100 years previously Broseley pipes had been studied (R. Thursfield 1863) though the dates for the makers listed are quite inaccurate. Kingston upon Hull pipes were studied at the beginning of this century (Sheppard 1902, 2nd ed 1912), though unfortunately few bowl shapes are shown. The Bristol industry in the C17 was examined in a paper with a number of illustrations, by J.E. Pritchard, a noted Bristol amateur archaeologist (Pritchard 1923 - Pritchard 1912 is an earlier, unillustrated, resume of his work).

The background to Pritchard's paper is rather curious. In 1900 Hilton Price, then Director of the Society of Antiquaries of London, published a paper on pipes found in London (T.G.H. Price 1900). In this a number of pipes bearing makers' names were misidentified, and Pritchard, from his then-unpublished work on Bristol pipes, was able to correctly identify them. Pritchard supplied much information and a number of drawings of Price, whom he allowed to publish a "supplementary note" based on this as an addition to his previous article. However, Price published under his own name a full article - "Notes upon Clay Tobacco Pipes of the Seventeenth Century found in Bristol" - complete with 17 illustrations (T.G.H. Price 1901). From the copious acknowledgements which Price gives Pritchard it is possible there was a genuine misunderstanding on Price's part, but Pritchard certainly did not intend Price to publish his material as fully as he did, as he makes clear in the introduction to his 1923 article.

With the exception of these two articles, or two versions of one piece of research, little has appeared on Bristol pipes and pipemakers, though in a little-known study of the Bristol-Virginia tobacco trade in the C17 N.C.P. Tyack includes a chronological list[5] of Bristol pipemakers to 1700 taken from the freedom rolls (1935b: 200 and 1935c: 234) in addition to similar lists of tobacco-cutters, tobacco-rollers, and tobacconists (1935b: 197-200). In particular, the industry in the C18 and C19 has never been examined. However, pipes made by the Robert Tippet family - three generations all called Robert - a famous Bristol pipemaking family during the second half of the C17 and the first half of the C18, have been studied by Omwake (1958) and Oswald (1959a), the former article appearing to be the more accurate.

Oswald's study of English pipes (Oswald 1970b: 231, 227 for latest figures and conclusions, cf 1960a: 43-6 for earlier conclusions and 1959c: 202 for figures) suggests that Bristol became the chief export pipemaking centre in the country during the second half of the C17 and held this position until about the middle of the C18 when the number of pipemakers there dropped sharply, Liverpool taking over as the second pipe-producing centre after London. London in the early C19 had a very sharp rise in the number of pipemakers recorded and once more established a clear lead in the trade, similar to that which it had enjoyed during the first half of the C17, but the very small number of London pipemakers recorded for the period 1750-1800 is due in part to a paucity of records for that particular period.

According to I. Noël Hume (1963: 264), Bristol seems to have been the chief exporter of pipes to Virginia from ca.1660 to the end of the Colonial period. A more recent appraisal does not substantially alter this impression: Atkinson and Oswald (1969: 205) note that in the first half of the C17 London appears to have been the major supplier, losing the market to Bristol in the second half of the century; though they also note that at Williamsburg, the capital of Virginia in the C18 until the end of the Colonial period, London pipemakers did continue to have a large proportion of the market. Noël Hume's observation, however, tends to agree with Oswald's earlier comments (1960a: 46) that the decline of the Bristol pipe industry at the end of the C18 can be at least partly attributed to disruption of trade caused by the American Revolution, and suggests that the reason for Bristol's rivalry with London as a production centre despite its much smaller population is its large New World market. If Virginia obtained a large proportion of its pipes from Bristol it is likely that the trade was not restricted to that colony, but involved all English and British colonies in the New World from the Caribbean to Canada, and other areas to which Bristol ships traded. At Port Royal, Jamaica, out of a large number of pipes examined by Oswald covering the period ca.1680-1740, 225 had marks he identified with Bristol makers, 26 with London makers, and two each with Broseley, Kingston upon Hull, and York, while 28 were Dutch (Oswald 1970b: 231). These points, among others, will be examined in this thesis.

Thus a study of the Bristol pipemaking industry, the identification and dating of its products and makers, should, because of the relatively accurate dating obtainable from pipes, be of considerable assistance in dating not only historical sites in the New World and elsewhere but also native sites, which during the Contact period frequently have European material amongst their remains. By the same token British post-medieval sites will also be more accurately dated. The overall result will be an improved chronology not only for sites but also for material - ceramics, glass, or metalwork, for example - at present not always closely datable in its own right. Only by such painstaking cross-dating can much of the material found on historical (and of course prehistoric) sites be dated. As J.D. McGuire remarked in his monumental study of North American Indian pipes (1899: 454); "The trade marks and symbols on [European] trade-pipe heels and bowls are too numerous to mention, though doubtless a study made of them would settle many vexed points in American archaeology."

This study also covers the manufacturing processes used at various times and in various countries to produce clay pipes. This field has never been adequately studied, particularly in the case of Britain. No apology is offered for this extensive section, for the industry is now almost dead, and in any case historians and archaeologists involved in studying cultural material or processes should have some practical knowledge of the mechanics of producing that material or of the machinery involved (I. Walker 1971b: 14; cf Buchanan 1968: 3; 1970b: 282 and 1972b: 24). Further, a close examination of the pipes themselves in the light of evidence coming from their manufacture reveals aspects which help in dating pipes; conversely a careful study of the pipes can give indications of manufacturing technique not previously known from surviving sources.

Lastly, the human aspect, to which all history has to be directed if it is to succeed in its function, has to be considered. The makers, people who existed largely anonymously as do most people of every generation; and the industry, a source of livelihood for those who followed the craft and a part of the community's trade and a supplier of profit to merchants, have to be examined.

It is hoped that this study will, as the surviving evidence permits, investigate these aspects of the subject. If it manages this, and if it opens fresh avenues to future researchers, then it will have succeeded in the task initially mapped out.

SECTION II:
ENGLISH CLAY PIPES AND THEIR DATING

(a) TYPOLOGY

The first attempt to consider English pipes typologically was by A.H. Oswald in 1951 (Oswald 1951). A revised edition of this typology appeared in 1955 (Oswald 1955a), and this was reissued with some minor textual alterations in 1961 (Oswald 1961). Regional typologies have been produced for Broseley pipes (Oswald and James 1955a: 189; revised dating Oswald 1970b: pl 201) and for those produced in Sussex (Atkinson 1964a: pl facing p.73), London (Atkinson and Oswald 1969: 177-95), and NE England (Parsons 1964: 236 fig 1, 4-18, and 239 fig 2,32-3); and as already noted I. Noël Hume (1963: 262 fig 105; 1970: 303 fig 97) has made a typology of pipes found in the Colonial and later eastern United States. These various typologies are shown in FIGS 1-6 (references to illustrations contained in this study are denoted by the word FIG or FIGS in capitals).

As these are discussed by their compilers and the general trends are evident from the drawings themselves, it is not proposed to deal with them here. The major change to note is the introduction of Oswald's types 7 and 9 and the hybrid type 8 ca.1660-80. It has been generally held that the type 9 shape is a result of the influence of Dutch pipes brought into the country by soldiers of William of Orange in 1688, but it is difficult to trace this attribution to its source. Croker (1835: 30) correctly, though not on entirely accurate grounds, attributed these types to William's reign. Lamb (1852: 30-1) appears to have been the first to suggest, from their appearance on camp-sites of William's troops during the English Revolution, a possible Continental origin for these types. Unfortunately, he is either in error or has confused his references to his illustrations, so that the types to which he refers are not those datable to ca.1688 (cf H.E. Smith 1860: 211-2). Smith, Fairholt (1859: 169), and Jewitt (1863: 76-7 and 1878: I, 293, 295) follow the ascription of these pipes to William's reign on the grounds of their discovery in his camps, but do not specifically suggest that they could have been of Dutch origin or inspiration.[6] Possible Dutch prototypes are discussed in 3: II and 6: VII(a)(2) (this form of referencing - 3: II and 6: VII(a)(2) - is a shorthand way of giving chapter, section, sub-section, and other sub-divisions within this work; thus 3: II refers to Chapter 3 Section II). Perhaps allied to this change in bowl form, but possibly occurring independently, the denticulation round the bowl rim begins to be omitted, a point which will be returned to when the manufacturing techniques are discussed.

Certainly the new shape appears to have spread rapidly throughout England, as instanced by type 9 shapes appearing by ca.1700 both in the south (Atkinson 1964a: pl facing p.73) and the north (Parsons 1964: 236 fig 1). In a deposit from Durham known on historical evidence to have been sealed in 1684 one imported example of this style - an early one - and three local transitional types were found (Parsons 1964: 238, 244 and n.44), four years before William of Orange's landing. The import, made by Thomas Hunt, Parsons attributes to a member of the Bristol Hunt family because the bowl had the distinctive Bristol shape of pipes made there in the second half of the C17, but although several Hunts are recorded in Bristol at this time Thomas is not one of them. Atkinson attributes this particular mark (not illustrated by Parsons, seen by this writer at the Autumn Conference of the Society for Post-Medieval Archaeology, Durham, November 1967) to a Marlborough maker of this name and period. This Thomas Hunt worked in Marlborough from at least 1667 to at least 1696, and Atkinson believes that it was he, ca.1685, who first produced the type 9 style (Atkinson 1965c: 87-8, 93-4, rev ed 1969b).

Light may be shed on this point by the time the present study is finished, for Thomas Hunt could easily be a member of the Bristol Hunt family who moved to a fresh market. The occurence in the North-East of West Country pipes of type 9 form this early, whether manufactured in Bristol or Marlborough, is surprising, for the distribution of type 9 pipes in England is initially limited, one area being the West Country (Oswald 1961: 60), and there are some grounds (see 6: VII(a)(2)) for suggesting this type could have started there. Further, type 9 pipes become the exclusive type of English pipe found in the New World, one Bristol version, a heelless variety, becoming an "export only" type (Oswald 1959c: 59-60). As Bristol is held to have been the major centre for sending pipes to the New World this may be significant to a study of the Bristol industry.

(b) STATISTICAL DATING

Two methods for dating pipes based on entirely different ideas may also be noted. One is a system put forward by J.C. Harrington (1954) and expanded by L.R. Binford (Maxwell and Binford 1961: 107-9; Binford 1962). Its advantages and dangers have been discussed by the writer (I. Walker 1965; 1968a; 1970b; 1971c: 88-9, 117-9) but a short description will be given here as there has recently been a renewed flurry of interest and controversy in the system. Basically, Harrington was able to show that from ca.1620 to ca.1800 the bore diameters of the stems of English clay pipes found on North American sites decreased quite regularly, and by use of bar-graphs derived from measuring samples from datable deposits he was able to state proportions for various periods of time (FIG 7). Harrington excluded Dutch pipe material as, while their stem bores may possibly exhibit a similar phenomenon, Dutch pipes appear to have tended to smaller bores compared to English pipes of the same period and therefore make calculated dates later than the true date (Harrington 1954: 3rd page; cf I. Walker 1965: 61; 1968a: 80-1; 1971c: 88-9, 117-9).

Binford subsequently took Harrington's data and produced from it a straight-line regression formula $Y=1931.85-38.26X$ where Y is the desired date, 1931.85 the theoretical date when the bore diameter would reach zero by the formula, 38.26 the slope of the line (the average number of years between each increment - the bore diameters are measured in 64th ins) and X the mean bore diameter of the sample of pipe-fragments measured. The date obtained is the median date of the sample, and in theory the median date of the deposit containing the material. In practice the formula, and thus the bar-graphs also, appears to be accurate up to ca.1765, after which it rapidly becomes too inaccurate to use, the dates produced being too early.

Both these methods have been applied with remarkable accuracy in North America, but some work in England (Whitehouse 1966; Belcher and Jarrett 1972; some unpublished work by the writer) suggest that when applied to material found there these methods can become quite inaccurate, though Atkinson and Oswald (1969: 208-9) have applied the Binford formula to a number of deposits from London with tolerably good results.

The writer is at present collecting further data to re-examine the Binford formula and increase its accuracy, for it appears to be an averaging out of what is in fact a curved line. The late H.G. Omwake had a formula produced by computer from this curved line plus additional dated material which read $Y=1929.189-26.818X$ (Omwake 1967b: 9); while another American colleague doing work on similar lines (Hanson 1971a) suggested the Binford formula was mathematically in error and produced a series of formulae which best fitted various periods within the overall time-span covered by the Harrington bar-graphs. Hanson's paper has been strongly attacked by Binford (1972) who denounce Hanson for not having written him about his data before publishing a criticism of it and for offering him (Binford) "the most patent kind of insult [which] supplies us with a very nice example of the kind of methodological differences separating historians from scientists" - into which former category of peasant he also places this writer (Binford 1972: 235, 234). Binford was, however, forced to admit (pp231-2, 235-6) that his statement of his original theory, and the manner in which he gave - or rather, failed to give - his evidence was responsible for Hanson's deductions that Binford's formula was inaccurately produced. Harrington, as indeed he noted when originally publishing his bar-graphs (Harrington 1954: 2nd page), used material from a number of deposits, some of which were relatively closely dated, to form groups of evidence for wider chronological periods (varying from 30 to 50 years in fact) and Binford had used this original data to compute his formula and not, as one would suppose from reading his accounts, the already-averaged graphs published by Harrington. Unfortunately, Binford did not specifically state this, still less did he present this original evidence; Harrington never published his original data either and now neither Harrington nor Binford can find their notes on it. Hanson in his reply to Binford (Hanson 1972) accepted that his own formulae were no longer relevant in the light of Binford's explanation as to what data the latter's formula was actually based on.

Stimulated by Hanson's first paper, Heighton and Deagan (1972) used data from 26 deposits to present an improved formula. Like Hanson and this writer, they found there was a curved-line regression, though their explanation for this is severely anthropological, being that "Many long-term movements or secular trends in the social and physical environment cannot be adequatly approximated by a straight line" (Heighton and Deagan 1972: 220). They found the curve which best fitted the data was the Compound Interest Rate Curve, and expressed it as follows. A value X is calculated from the equation $x=\frac{\log Y+1.04435}{.05234}$, being the mean bore diameter of the sample to be dated. The date is then calculated by adding 22X to 1600. It appears to this writer that a formula of this sort will eventually produce the ultimately satisfactory date, but Hanson correctly notes (1972: 256) some of Heighton and Deagan's data comes from sites either poorly dated or with inadequate numbers of pipestems: as no formula is better than the data used to calculate it, there is an urgent need to collect the most reliable data in terms of adequately-excavated and -dated contexts and reasonable amounts of stems. It is to be hoped, however, the study does not degenerate into abstract mathematical games (for more technical mathematical arguments and counter-arguments see Binford 1972: 236-49 and Hanson 1972: 255-7; see also tables and graphs in Cresthull 1972).

In The Netherlands, the late F.H.W. Friederich (1964a-d; 1970) evolved a dating method whereby the height of the bowl measured from the plane of the rim to the junction of heel and stem nearer the smoker, the greatest diameter of the bowl, and the diameter of the bowl mouth, all measured in millimetres, are multiplied and the resulting figure fitted to tables, or in the 1970 version four graphs, equating these figures with dates. Essentially, there appears to be a steady increase in the calculated figures as the date of manufacture approaches the present. The graphs cover various periods between 1580 and 1895 and relate to different categories, both typological and chronological, of bowls. One covers English pipes datable to 1580-1605 and is based on English material found in The Netherlands and material illustrated in English publications. Friederich's scheme is difficult to follow, partly because Friederich does not write in a particularly scholarly manner but principally because he does not explain the method clearly and does not give enough corroborative dating evidence for the initially-postulated dating: in particular there is no mention of archaeologically-dated material being used for comparison. Friederich appears to put much reliance in dating from pipes shown in Dutch paintings - which are generally closely datable - and from pipes which either carry a date or commemorate an historical event of definite date (Friederich 1970: passim; cf Oswald 1970b: 232). Whether it is safe to generalize from these dates, particularly when measurements to the millimetre are involved in Friederich's formula, seems dubious; certainly dating to a specific year is unrealistic. However, Friederich has produced a series of typologies of Dutch pipes based on dates derived from his formula and charts, and there is a convenient summary in English of his work in the form of a typology of the major types of Dutch bowls in Atkinson 1972d.

In some cases at least Friederich's dating of English C17 bowls or attributions as to source are wrong; for example, the pipe (1964d: 4 no 16) attributed to Bristol and dated 1720, while certainly English-looking, is of a shape more typical of London and is likely to be pre-1700 in date. However, work by Friederich on English material sent him by Oswald and Atkinson (Oswald in litt. 1 December 1970) indicates that post-1680 English material seems well-dated by his graphs, though C18 English pipe-shapes are quite different from Dutch ones, while pre-1680 material does not fit well, though C17 Dutch pipe-shapes particularly in the earlier half are much closer to English shapes. This writer has not yet applied this method of dating to either Dutch or English pipes found in North America, but in a number of instances has been able to date Dutch material from stratified deposits and to find general agreement with Friederich's dates provided the latter are given a decade or two's latitude either side for length of life of style. So far as he is aware, no pipes from datable excavated contexts in The Netherlands have had this method applied to them; a drawback to its use is that it requires whole or relatively undamaged bowls, an occurrence all too rare on most excavations.

(c) HEELS AND SPURS

There are, of course, other dating elements in clay pipes. The heels or spurs under the bowls at their junction with the stem evolve and change, and this process can, in general terms, be followed from the literature. The heel first appears ca.1620, evolving from a flattened, often drooping, sometimes horizontal or inclined upwards, part below the bowl which seems to have been one of the earliest features of many English pipes. It was presumably designed so that the pipe could be stood upright when not being smoked, and evolves from this feature in Oswald's types 1 and 2, through type 3 to type 4 variants which have the true heel (Oswald 1961: 56-7, 59; cf Fairholt 1859: 163, H. Scott 1917: 153; Pritchard 1923: 171; A. Dunhill 1924: 224) and is usually approximately round but can be angular, oval, or egg-shaped (Sheppard 1902: 15, 1912 ed; H. Scott 1917: 153), rectangular (Jewitt 1878: I, 295; A. Dunhill 1924: 214), or heart-shaped, a form which became standard on Broseley pipes (Oswald and James 1955a: 187-8).

The heels were large, low, and flat, and sometimes took the maker's name or initials. However, during the third quarter of the C17 heels became smaller but more prominent (cf Holme 1688: 271, 1905 ed), and a reduction in their practical value naturally followed. An exception to this trend was at Broseley, where about this time the distinctive Broseley heel, which remained or at least was revived on some types of pipes manufactured there until recent times, evolved and by the end of the C17 was large enough to take three-line stamps with the maker's name (Oswald and James 1955a: 187-90).

Meanwhile, the spur - a pointed protrusion beneath the bowl - had appeared as early as Oswald's type 4d (ca.1640-70), perhaps a development of the idea which resulted in type 4b (ca.1620-50), itself a development of the drooping part beneath the bowl of earliest pipes and already noted.

By about the end of the C17 heels are becoming skeuomorphic, and by the early C18 the heels, while still having a flat base or at least a flattened apex to a spur-like protrusion, are no longer designed for balancing the pipe upright when not in use. As these heels, or spurs as they were now typologically approaching, were now becoming too small to take even the makers' initials, these become frequently placed, particularly in the London area, on either side of the heel or spur with the initial of the first name invariably on the left, generally vertically, when the pipe is in the smoker's mouth (Jewitt 1863: 77; repeated in 1878: I, 295; H. Scott 1917: 134; A. Dunhill 1924: 212-4; Oswald 1961: 56; Atkinson and Oswald 1969: 185). Duhamel du Monceau, writing in France in 1771, noted in classifying pipes that heeled examples came in two forms, "*Pipes à talon ordinaire...& en Angloises, ou du façon Angloise qui ont le talon pointu*" (Duhamel du Monceau 1771: 3), suggesting that the pointed heel, or spur, was regarded in Europe in the later C18 as a distinctively English feature.

Towards the end of the C17, and continuing through the C18 and until the present day, many pipes, chiefly modifications and developments of Oswald's type 9, were made with no heel (Oswald 1961; 60, 61).

Thus it can be seen that an examination of pipe heels and spurs offer only general dating when considered separately from other features; for while large heavy heels generally date only to the C17, pipes with smaller heels, spur-heels, short blunt spurs, long pointed spurs, or no heel at all, all existed from the end of the C17 or earlier and onwards.

(d) STEM LENGTH

Stem length can offer some guidance for dating, but it is extremely rare that complete pipe-stems are found. At Jamestown, Virginia, for example, out of a total of ca.50,000 stem fragments only three of four whole stems were recovered (Harrington 1954: 1st page). Stems increased gradually in length from the end of the C16 when some were as short as 1-3/4 ins and the average length seems to have been ca.3 ins (contra Trevelyan 1942: 200, 315, 1946 ed) into the C18. Average length ca.1630-40 appears to have been 6-1/2 ins, ca.1660-80 10-13 ins, and ca.1700 15-16 ins (Oswald and James 1955a: 188; Harrington 1954: loc. cit.; cf Brongers 1964b: 17 with a 1598 reference to pipes "one finger long" with a bowl the size of a hazelnut; Atkinson and Oswald 1969: 209; and I. Noël Hume 1970c: 296). Early in the C18 the "Alderman" was introduced, (Fairholt 1859: 173; cf Penn 1901: 150 and T.P. Cooper 1907: 108) which had a stem probably up to 18 ins long, designed so that the smoker could rest his arm on his elbow-chair without lifting his hand to steady the bowl (Fairholt loc. cit. footnote). As the C18 progressed the length of pipes increased. (For the use of metal pipes as an alleged substitute for the fragile long-stemmed clay pipes, see Appendix I).

According to some sources (T.P. Cooper 1907: 108; Apperson 1914: 89; A. Dunhill 1924: 219) the still-longer Churchwarden clay pipes appeared in the late C18 or early C19 with stem lengths of 24-28 ins (Jewitt 1878: I, 298; T.H. Thursfield 1907: 163) and up to 33 ins (Chandler 1957: 340-1). Harley (1963: 15) asserts that the Churchwarden was introduced in 1819, but he gives no evidence for this statement and elsewhere in his monograph reveals he is not reliable on all points; he may be misquoting T.P. Cooper (loc. cit.) who said that the Churchwarden came into fashion ca.1819. According to Mackenzie (1957: 199) Tennyson while at Trinity College, Cambridge, in 1828-30 noted "long churchwardens" set on the Combination-room table at Queen's College, but it is not clear whether Churchwarden was a term contemporary with Tennyson's time at Cambridge. G.B. Hughes (1961b: 1634) says that the term Churchwarden dates no earlier than 1840, but like Harley, he is an unreliable source and cites no reference for this date. Although George Sturt records (Sturt 1923: 153, 1963 ed) that the Churchwardens his grandfather used and reburnt for further use (cf p.414 below) when Sturt was a boy had gone out of fashion at any rate in the Farnham area of Surrey when he took over the family's wheelwright business there in 1884, Churchwardens in lengths from 12 to 21 ins continued to be made in Leicester until WW I (Daniell 1965: 61), and a member of the Leigh pipemaking family who were in business at Portchester, Portsmouth, from 1840 until after WW II recalled there used to be many orders for "Churchwarden's fancy pipes" at Christmas (C. Green 1973a). Indeed, 9- and 12-ins Churchwardens are still made by the Manchester firm of John Pollock and Co. These are in great demand in North America, and Mr Clive Southorn of the now-closed firm of Southorn and Co. at Broseley, Shropshire, said in 1968 he could sell any number of Churchwardens were he to start business again.[7]

There is much confusion over the terms Alderman and Churchwarden, and it may be that they were never closely defined. If they were, the original definitions have been lost. For a more detailed discussion of the term Churchwarden, see Appendix II.

However, before 1700 short pipes of the types later known particularly in Ireland as dudeens and in Scotland as cutties had already appeared (Holme 1688: 271, 1905 ed; cf A. Deane 1914: 5 and I. Noël Hume 1970c: 296-7), and these seem to have been used by the lower classes. (The earliest recorded use of the term "cutty" for a pipe is in 1776 according to the OED vol II; "dudeen" does not appear to have been recorded before 1841 according to the OED vol III). Certainly, class differences were reflected in pipe lengths by the end of the C18 in England (Fresco-Corbu 1964: 424) and this appears to have been the case in The Netherlands from the introduction of smoking (Anonymous 1960: 81-2). In 1913 a correspondent reminiscing about pipe-smoking in the 1850s and 1860s (N&Q 6 September 1913, quoted in Mackenzie 1957: 257-8) noted that long-stemmed pipes were smoked in taverns by professional men and tradesmen while the short clay was definitely the mark of the labouring class. However, another correspondent at the same time noted (quoted in Apperson 1914: 163-4) that Sandhurst cadets in the later 1850s much favoured the superior cutties of the London firm of Milo, and yet another correspondent, writing Apperson noted that short clays were favoured "at Sandhurst and the Universities [i.e. Oxbridge]" because long-stemmed pipes were difficult to smoke unless the smoker was seated or otherwise at ease while cutties could be clenched in the teeth and smoked while working (quoted in Apperson 1914:164-5). Labourers, he continued, smoked short clays while out-of-doors and Churchwardens at the inn in the evenings (cf Apperson 1914: 162). Pimlott (1947: pl 13) reproduces a painting entitled "To Brighton and back for 3s 6d" and dated 1859 showing a young man smoking a long straight-stemmed pipe in a crowded train, accompanied by his girlfriend, which is perhaps surprising, both in regard to smoking a long-stemmed pipe in such surroundings and in smoking in female company at all at this time; Pimlott also reproduces a John Leech cartoon of 1851 entitled "A Cockney in Dieppe" (1947: 190) and depicting a typical lower-class individual with a cutty. An 1873 illustration of the inside of a Sailors' Home in East London which appeared in the Illustrated London News (reproduced in Samuel 1973: pl 1) shows two individuals smoking long-stemmed pipes - one of which is certainly a clay but the other of which appears not to be, one smoking a short-stemmed clay, and one - a coloured man, possibly a Lascar - with a cigar or cheroot; and the accuracy of this scene is suggested by the fact that the short-stemmed clay is carefully enough depicted to appear to be identifiable as a Woodstock type (see p.18 and n. 8 below, and FIG 8). However, although people like Thomas Carlyle, 1795-1881, smoked "Churchwardens" (if one may use the term) after the manner of the aristocratic and leisurely habits of an earlier generation (Fleming 1923: 243-7), in general the clay pipe of the average pipe-smoker of last century appears to have been short-stemmed (Anonymous 1856a: 94; Apperson 1914: 184; Hermessen 1926: 326; cf Nicks 1969: 117, 249, citing a Hudson's Bay Company account-book of 1810-11), and the reason was probably ease and convenience as much as cost.

Stem lengths were certainly being used to define types of pipes in Bristol in 1710 on the evidence of an agreement recorded in a Bristol Pipemakers' Guild record book (see Preface) and signed by members of the guild on 10 November of that year, or to be more accurate, there was an agreement made that year to standardize stem lengths for types of pipes, no doubt to lengths already approximately accepted in the trade at any rate among Bristol makers. As the preamble to the agreement put it, "a diversity in the Lengths of the sizes of Tobacco Pipes amongst the Company of Tobaccopipe Makers within the City of Bristol...hath tended to the prejudice and disadvantage of the Members of the same Company in Generall". "Long Pipes" were to measure 16 ins, "Dutch Pipes" 14 ins, "Jamayca Pipes" 13 ins, "Pecked(?) Heeles and Gantletts [sic]" 11-1/2 ins, and "Virginia Pipes" 8-1/2 ins, all measurements being made "from the Heel in the direction of the Point" (see p.109 n 10). Members agreed to "shorten their severall Moulds" to these sizes before 1 December following (i.e. within three weeks), "unsizeable Pipes" being forfeit and a fine of 1s for each gross of such pipes produced being laid down (the types of pipes mentioned are further discussed on p.259, 652, and 655 below).

That this regulation was enforced is evident from a case recorded in the same guild book dated 14 March 1734/5, where William Nicholas, who had taken his freedom in 1730 and was recorded working as late as 1775, was found to have "caused a Mould to be made for making Tobaccopipes of about the length of 24 Inches" in breach of the agreement which he had signed "in this Book" and was duly fined 1s per gross of pipes produced in this mould, though the number of gross involved is not stated. Of extreme interest is an adjacent entry of the same date in which the mouldmaker who had "been employed by the said Society [the guild]" to make pipe-moulds, "having inadvertently made a Mould for Mr. William Nicholas contrary to the said Article [i.e. that defining stem lengths]" promised "in consideration of the said Societies having promised to employ [him] in making the said Moulds for the future" never to transgress again, and bound himself in the sum of "Five pounds of lawful money of Great Britain" for good behaviour. Frustratingly, no signature appears at the foot of the statement so the name of the guild's mouldmaker is not known (there is no signature beside the word "Witness" either, suggesting the written undertaking at any rate may have been cancelled), but it is clear that the guild had an official mouldmaker - presumably a smith or a founder - and this suggests many bowl shapes, as well as stem lengths, may have been the same for different makers' products, a point to be kept in mind when considering bowl typologies, identifications as to maker made on bowl shape alone, and local bowl forms.

The Dutch, with their superior pipemaking tradition, were producing pipes three feet and more in length during the second half of last century according to Jewitt (1878: I, 293 n.); and during visits in April 1969 to museums in Belgium, The Netherlands, and north France this writer saw several pipes and moulds - generally Dutch - where the stem length was one metre (over 39-1/4 ins). Duhamel du Monceau (1771: passim) notes Dutch pipes as long as ca.32 ins and short ones of ca.8 ins, but said the most common Gouda pipes were ca.19 ins in length. Harrington's experience of

Dutch pipes in colonial North America, however, was that they often had shorter stems than English pipes (1954: 3rd page).

(e) STEM THICKNESS

Stem thickness does not appear to be a particularly valid indication of age (cf Rippon 1917: 114). Pritchard (1923: 171) said that Elizabethan and early C17 pipes were thick-stemmed, but Harrington (1954: 1st page), who probably had more material available to him than did Pritchard, notes that very early pipes - those datable to ca.1600 - have slim stems, and that there is then a period of fatter stems, followed by a long period during which stems steadily got slimmer. A. Dunhill (1924: 223) observes that C18 stems are more graceful than those of earlier times; and Atkinson has noted that as the new type 9 bowl shape appeared and developed among makers at Marlborough (1965c: 87, rev ed 1969b) and Salisbury (1971: 181) in Wiltshire from the 1680s onwards, in the case of Salisbury into the later C18, stems became thinner, stem bores tending to become narrower at the same time. Among the thousands of C18 stem-fragments seen by this writer there has been a wide variety of thicknesses, but they are certainly slimmer and more graceful than C17 stems. There is some evidence that Dutch pipes, probably because of their superior craftsmanship, were narrower stemmed in the C18 than their British counterparts, and possibly the short-stemmed cheaper English pipes had thicker stems than the more expensive types (I. Walker 1967c: 189, 192-3; cf Harrington 1954: 3rd page). However, all stems appear to have been made narrower at the mouthpiece than where the bowl joined (I. Walker 1967c: 189, cf Duhamel du Monceau 1771: 23), so stem thickness varies not only with type of pipe but with the part of the stem measured.

(f) STEM CURVATURE

The stems of almost all known C17 pipes appear to have been straight, but a reference to "curved English pipes" does occur in the mid-C17: the Dutch trader Jeremias van Rensselaer wrote home from what is now New York state on 14 June 1658 that he had sold three out of four cases of pipes and that the fourth would have gone had there "been some of those curved English pipes in it too" (Van Laer (ed) 1932: 102) - which also suggests the Dutch were not making "curved" pipes at that time. A. Dunhill (1924: 222-3, figs 218, 219) notes Dutch pipes with long stems curved slightly upwards towards the end datable to the late C17 and early C18. In the C18 and later, long-stemmed pipes are known to have had downward-curved stems (Fleming 1923: 247; A. Dunhill 1924: 219, 221, figs 212, 216), but while it may be safe to say that curved stems found on an excavation are unlikely to be pre-1700 in date there is little more that can be deduced from stem curvature alone.

(g) STEM DECORATION

Initials occur on stems ca.1650, and full names are known by ca.1670 (Oswald 1961: 56). Both are placed on the top of the stem. On C17 examples the name is sometimes spiralled round the stem (Omwake 1965a: 29); later, the name is blocked in two or three lines, a method used in areas as far apart as the North-East in the period ca.1675-1725 - where it is relatively elaborate (Parsons 1964: 245-7, fig 3a) - and Wiltshire and Hampshire in the C18 century (Atkinson 1965c, rev ed 1969b; 1969c; 1970a; 1973). Several Bristol makers in the second half of the C17 bordered their initials with denticulated lines round the stem and filled the remainder of the space between the lines with diamonds (see 6: VII(a)(2)). The use of denticulation as a stem-marking is, however, much more of a Dutch feature and occurs on Dutch pipes by the mid- and late C17 (I. Walker 1971c: 82 and refs; Düco 1974: figs 1-8, 13A-13B; Andersen 1974: 99, fig 9 middle and lower examples) and on into the C19 at least (Humphrey 1969: 20, 19 fig 13c; also material seen by this writer when visiting Dutch and Belgian museums in 1969). A heavier stem ornamentation is also likely to be Dutch (I. Walker 1971c: 82-5) or, in the C19, German (e.g. Gifford 1940: 123 pl IV, 27).

Generally, decorated stems are not common on English pipes, particularly before the C19 - indeed, Duhamel du Monceau (1771: 4) says one of the differences between "English style" and "Dutch style" pipes is that the former have no stem-decoration. However, ornate decoration is known from Nottingham (Oswald 1959c: 206 fig 41; 1970b: 226, 229, 240, pl 202 lower, cf 1970a: 136, 135 fig 56, 55; Alvey 1972: 30 fig 10; 1973: 39-40 figs 2-3; 1974: 26 Fig 11, 21-26) - in the opinion of this writer there is Dutch influence here - Chester (G.C. Spence 1942: 50 and 53, 51 pl IV; Webster and Barton 1957: 19-21, 24 fig 1), and possibly Oxford (Oswald 1970b: 226, 229, 244, pl 213), all dating to the first half of the C18. A highly-ornate stem marked RICH^{D}./PAIN/DARBY [sic] from Lincolnshire (P.K. Wells *in litt.* 15 June 1971, drawing seen by this writer November 1973) is presumably a product of the Richard Payne of Derby listed by Oswald (1960a: 87) as taking an apprentice in 1762, and is very similar in decoration to the Nottingham pipes noted above. The same form of decoration also occurs on pipes recovered in the Doncaster area (material seen at Doncaster Museum by this writer October 1973). A similarly-decorated stem with the inscription C(?).WILK/INSON/Camb (H. Scott 1917: 160, 159 fig 18) suggests this style spread SE as far as Cambridgeshire - Wilkinson's dates are unknown, but Oswald (1960a: 98) suggests ca.1820. Derby is 14 miles west of Nottingham, Doncaster 38 miles north, and Cambridge 77 miles SE; further research may reveal an east-central England tradition of marking in this fashion similar, for example, to the Wiltshire-Hampshire tradition of placing the maker's name on the top of the stem near the bowl or the Bristol tradition of putting the name in a cartouche on the side of the bowl (see 6: VII(a)(2)), or the distinctive Lincolnshire practice in the later C18 to mid-C19 of placing the maker's name and place of work round the bowl under the rim (see following sub-section). At Broseley there is some evidence (Oswald and James 1955a: 190, 1955b: 225) that makers' names, often with that of the town, were stamped on the stem from ca.1700 - names round the stem, deriving from the heel-stamps noted in Sub-section (c) above, appear to have been slightly earlier than those lengthwise.

An unusual form of stem-marking has recently been recorded on two fragments from Wiltshire, one in the Salisbury and South Wiltshire Museum at Salisbury and the other found locally there (Atkinson *in litt.* 19 August 1974). The mark is in relief in an oval cartouche and shows the bust of a man with round the border in small relief letters A: VER . NON. The obvious inference is that it commemorates Admiral Vernon's spectacular capture of Portobello in 1739; if so, this would appear to be the earliest example so far known of what was a standard practice in the C19, the production of gimmick pipes commemorating some popular contemporary event (cf following sub-section and 2: VII). Atkinson (*in litt.* 30 November 1974) suggests that the Vernon-marked pipe and a similar pipe from Winchester with a company's arms as a heel-mark may have been special orders, the Vernon pipes perhaps for a special dinner commemorating Vernon's victory. The placing of such marks on the stem or heel is unusual - in the C19 the bowl was the standard place for such markings - but as the placing of maker's marks on the stem was a Wiltshire-Hampshire tradition of this period (see above; also 6: VII(a)(2)), the use of the stem for commemorative marks such as the Vernon example would have seemed natural enough. (For further discussion of decorated stems see I. Walker 1971c: 70, 82-5, 111 and 114-5, figs 11, 22, 29-30, 40, 44).)

Before 1800 pipemakers began to mould-mark their pipes with their name and place of work - this may have been first done in Liverpool as early as ca.1760 (see 4: II, also I. Walker 1971d: 19, 22-3) or conceivably Chester (see 4: III) - and this became standard practice during the C19 (e.g. Oswald 1960a: 50; see also 2: VII). In 1891 the United States passed the McKinley Tariff Act requiring all imported goods to bear the name of their country of origin, and in Glasgow at least this appears to have caused pipemakers to replace GLASGOW on their moulds with SCOTLAND. In the C20 this marking has been largely discontinued except when required by law, such as in the above case (Walker and Walker 1969: 135; see further 4: IV). Mould-imparted names are readily recognizable as such; there is no confusion between them and incised or stamped names.

In the C19 it became common for pipes to bear other marks, both on the stem and the bowl. A number of these are instanced when discussing moulds under British manufacturing techniques (see 2: VII), but stems often took the name by which the particular style of pipe was known, for example MINER'S PIPE or BURNS' CUTTY, with or without the maker's name as well. McDougall's of Glasgow, for example, produced a pipe marked WOODSTOCK PIPE on one side of the stem and McDOUGALL on the other (FIG 8 upper); they also produced one marked VOLUNTEER on one side and McDOUGALL GLASGOW on the other (e.g. Jelks 1973: 75; cf I. Walker 1971d: 25). A price-list of pipes produced in Scotland in 1900 (Anonymous 1900) by leading firms listed McDougall still making a "Woodstock Pipe" at that time and also noted the Glasgow firm of Waldie producing the same style, White of Glasgow producing a "Woodstock" and a "Small Woodstock", and Davidson of Glasgow producing an "Old Woodstock", a "New Woodstock", and a "Woodstock" (in that numerical and presumably chronological order, rather curiously);[8] the same 1900 list notes that Waldie and Davidson, besides McDougall, produced a "Rifle Volunteer"[9] pipe and that White produced one called a "Volunteer". Waldie's at that time also produced an "Ohio Pipe", a style which the Bristol firm of Ring had advertised themselves making during the period 1816-49 (see discussion of Ring's Ohio pipes in 6: VII(a)(2) and particularly 6: VII(b)(4), and illustrations in Appendix IX s.v. Ring).

The 1900 list gives ca.2,000 pipe types and styles by name and also by type number - these numbers frequently appear on Glasgow pipes ahead of the maker's name (e.g. FIG 9). Occasionally the number is preceded by a letter (e.g. FIG 10); there are cases of pipe-fragments with the same mould-number and maker's name but a different letter preceding the number, R.L. Wilson (1966: 37) noting White of Glasgow stems from Fort Union III, New Mexico, 1863-91, with 79, J 79, and M 79 on them. Presumably the letters indicated variants within the type represented by the number: FIG 10 shows a White stem marked J 73 and the 1900 price-list has type 73 as "Plain and Carved Cutties". suggesting one number covering different varieties, although White's number 79 is listed simply as a "Carved T.D.". Unfortunately, there are no illustrations with this price-list and it has been so rare that pipes are recovered sufficiently whole to allow the examiner to identify bowl shape or decoration with a mould number that virtually no work has been done on identifying these terms, the meanings of which are now lost with a dying industry. In the case of the 1900 price-list, many of the names given are of course common among the products of more than one maker, but there is still an impressive list of obscure terms (cf, for example, n.9 above. McDougall's "Woodstock Pipe" illustrated in FIG 8 bears on the opposite side to that shown in the illustration the mould-number 50, under which number the 1900 pricelist does list McDougall's "Woodstock Pipe"; FIG 9, as shown, is White of Glasgow's number 68, which the 1900 pricelist calls a "Bent Harp", a name of obvious enough meaning. A number of other names given have meanings which can be guessed at, and a few names, such as a "Dublin", refer to bowl shapes which still exist in today's brier pipe industry, but the vast majority are, and possibly always will be, of unknown meaning. That some names indicated pipes for specific markets is suggested by White of Glasgow having a "Montreal Dublin", a "Maple Leaf", and a "Sir John A." (a reference to Canada's first Prime Minister, Sir John A. MacDonald, who was and is popularly referred to as Sir John A.); more obvious, of course, are pipes which came with thistles, or shamrocks (or both), or slogans such as "Erin go Brach" (McDougall's produced a pipe with the latter name; White's produced a "Home Rule Cutty").

(For a more detailed discussion of types of markings on pipes see Oswald 1970b: 233-5, pls 203-5, 208, 211-2.)

(h) DECORATED BOWLS

These are known from the beginning of the C17, but they are rare before the later C18. They occur in the early and mid-C17 in the London area, in East Anglia - where, however, there is Dutch influence and pipes (e.g. Oswald 1959c: pl 127,A,rt) - and the Midlands (see Oswald 1960a: 50 for details; also Gant 1967a).

Elaborately-moulded pipes with the bowl modelled as Ralegh's head and the stem in the form of a crocodile attempting to swallow him (an allusion to a story about Ralegh which claimed that on one of his voyages he had been attacked by a crocodile which found him so impregnated with tobacco that it let him go) were made in The Netherlands throughout the C17 and are supposed to have been based on English prototypes of ca.1600 (Sleen 1963: 263 rt-hand illus, rt-hand example; Brongers 1964b: 34-5, illus; Friederich 1964c: 59-60, 58 fig 1 second row; 1964d: 3, 1 fig 23; DUco 1974: 2nd-3rd pages, figs 38-46 - Oswald dates them in one article (1970a: 140) to 1620-1740 but in another (1970b: 226) gives ca.1600-50). However, these pipes are extremely rare in England - three or four are known from London (ex info. A. Oswald) and there is one in Plymouth City Museum and another in Blaise Castle Folk Museum, Bristol (FIG 11 lower).

In view of their rarity in England, the general inferiority of those which are known compared to those found in The Netherlands, and the known Dutch superiority in pipemaking, it seems more reasonable to explain the few known in England as attempts to copy a Dutch model rather than English prototypes of the latter (cf Oswald 1970a: 140; Atkinson and Oswald 1969: 195). However, the Blaise Castle example may be Dutch - where it was found is not known, but it is almost whole and came to the museum with the material of J.E. Pritchard, the authority on and collector of Bristol pipes, who had another two incomplete examples in his collection and now in the British Museum. On the left side of the stem is the word IONAS, the N and S being retrograde; and on the right the date 1683. Jonas is the usual form in Dutch for Jonah, the iconography here presumably being Jonah and the great fish rather than Ralegh and the crocodile, and the superior craftsmanship strengthens the supposition that it is Dutch (though admittedly the form Jonas for Jonah does occur also in English). If the pipe is Dutch however, and the date can be taken at face value, Brongers would appear to be correct in saying these pipes were made throughout the C17. To confuse matters thoroughly, however, it appears that copies were being made in the C19 in East London (the Bristol example is illustrated and the style and various finds discussed in I. Walker 1972b; the Bristol example is also illustrated in I. Walker 1972a: illus. opposite p.88).[10]

Brongers also notes "so-called Good Queen Bess pipes" with the bowl apparently modelled to represent Queen Elizabeth, and dates them to ca.1600 (Brongers 1964b: 33, 34 illus lower rt; Friederich 1964c: 59, 58 fig 1 top rt, 59 fig 2; 1964d: 1, fig 25). Elaborately-decorated stem and bowls, the latter depicting Charles I and his queen Henrietta Maria, have been found in London, one in a context of ca.1666 (Oswald 1960a: 52, 51 fig 21, 19; Atkinson and Oswald 1969: 195): a pipe with this depiction would seem more likely to be English than Dutch and could date as early as 1625 when Charles married Henrietta Maria. Holme, who was collecting information for his work by 1649, refers to "Wrought pipes in the head and shank" (1688: 271, 1905 ed) which must mean decorated pipes; and in 1619 the first charter of the Westminster pipemakers' guild in fixing a price for best pipes allowed that ones of "extraordinary greatness or unusuall curiosity of workmanshipp" could be priced higher (PRO C.66/2206 Patent Rolls 17 Jas. I, 5 Oct (No 6)), suggesting decorated pipes were being made this early.

A pipe probably datable to early in the second half of the C17 with the bowl covered in rouletted lines and impressions of a Tudor rose is in the Blaise Castle Folk Museum collections - it also bears a Tudor rose heel mark (FIG 11 upper). (The use of a Tudor rose as a maker's mark appears on English pipes at the beginning of the C17 (Oswald 1960a: 41); and surmounted by a crown it was the mark of the first pipemaker in Gouda, The Netherlands, an Englishman who commenced pipemaking there in 1617 (Helbers and Goedewaagen 1942: 45). The mark continued to be used in The Netherlands until the later C18 (Helbers and Goedewaagen 1942: 201), but it appears to have continued in use in England longer than has hitherto been accepted, for it occurs repeatedly on bowls found in Bristol and typologically covering a period from before 1650 into the last quarter of the C18.) The bowl in FIG 11 upper certainly appears to be English and may have been Bristol made - the occurrence of the Tudor rose on bowls of distinctive Bristol shape

(Oswald's type 6a) suggests their manufacture by an as yet unidentified Bristol maker. A pipe which was apparently favoured in colonial North America was that with the bowl bearing the royal coat of arms. These pipes are not common in England, but those which do occur do so mainly in London and the Home Counties. Although the arms depicted can be as early as those of William III (1689-1702) and Anne (1702-14), American archaeological evidence suggests their production was from the middle of the C18 (at Louisbourg from unknown or undatable contexts I. Walker 1966a: 91, 90 figs 3a-6; at Williamsburg post-ca.1740 Atkinson and Oswald 1969: 207, 197, cf 196 fig 10,F, upper left, 198 fig 11,1; A. Noël Hume 1971) - Oswald (1960a: 52) originally suggested a floruit of ca. 1690-1740 (cf now 1970b: 226, 236).

What may be a variant of this idea is a bowl from Lincolnshire described as having George III depicted on one side and the royal arms on the other (quoted in Whitwell and Wilson 1969: 115 s.v. Stoke Rochford), but at present no parallels to this find appear to be known.

Duhamel du Monceau (1771: pls I-IV) illustrated north French and Dutch pipe bowls with mould-imparted ornamentation, including ones with fluting or ribbing, a decoration becoming common on English bowls from ca.1770 onwards (e.g. I. Noël Hume 1963: 262 fig 105; Atkinson and Oswald 1969: 195-201; cf Anonymous 1770 s.v. Pipe). John Naylor of Boston, who must be the John Naylor apprenticed 1751 in Lincoln to his father James Naylor (A 1724, retired 1787) and free there 1761, was in Boston by 1776, and fluted bowls produced by him and bearing the characteristic Lincolnshire marking of the maker's name and place of work above the fluting and below the rim indicate he was producing pipes with fluted bowls in the later C18 (P.K. Wells 1792: 14, 12 fig 7,1). Further, Naylor was producing bowls with a variety of other decorations, including the coat of arms of Boston (ibid. 12 fig 7, 2-3) - unfortunately, it is not known how long after 1776 Naylor continued to work. Fluted decoration is also common on Danish-made bowls imitating both English and Dutch shapes in the last quarter of the C18 (Kristensen 1959: figs 19-25). According to Friederich's dating of Dutch bowls, examples with fluting and a remarkably C19-looking bowl form are occuring in The Netherlands by the mid-C18 (Atkinson 1972d: 179, 180 fig 80,40).

A distinctively Lincolnshire form of marking, as noted above, was the placing of the maker's name and place of work on either side of the bowl below the rim. Variations included simply having the place of work given thus (e.g. MARKET/RAISEN (sic) and LINC/OLN) or having the words placed in the middle of or at the foot of the bowl sides - this last occurs as early as the version with the words below the rim, John Naylor of Boston noted above as working there by 1776 using both forms (cf P.K. Wells 1972: 12 figs 7,1 and 7,2-3). This form of marking was used by makers from at least the later C18 - pipes marked thus NAYLOR/LINCOLN, presumably products of the James Naylor noted above as retiring in Lincoln in 1787, have been recorded from Lincoln and Bourne, and as indicated above John Naylor of Boston, working there by 1776, and presumably James Naylor's son, was producing pipes in this style, his products being recorded from the Boston area - up to makers in business into the second half of the C19 and as late as 1872; and it is known geographically from makers all over the county from Grimsby to Grantham and Gainsborough to Boston as well as from as far north as Kingston upon Hull in Yorkshire, as far west as Doncaster in Yorkshire (example seen by this writer in Doncaster Museum October 1973) and Nottingham (Alvey 1973: 36 fig 1,11-12) and Newark in Nottinghamshire, and as far south as Wisbech in Cambridgeshire (except for the Doncaster and Nottingham examples, I owe all this information to Peter Wells, who most generously made available to me information from his files).

That this form of marking extended quite widely down the east and south coast is suggestd by its scattered appearance among Essex, London, Sussex, Surrey, and Dorset makers. In Essex, Thomas Balme of Romford and another Thomas Balme (or possibly the same, if his business had branches) in East London produced reeded bowls with the letters T and B on the left and right heel sides and respectively ROMFORD (Harley 1964: 213, pl I) and MILE END (Huggins 1970: 95) below the rim in typical Lincolnshire fashion. The Romford Thomas Balme is recorded 1805-11 (Bloice in Atkinson and Oswald 1969: 217) and the East London Thomas Balme 1805-40 (Bloice *loc. cit.*), the latter's premises being in Wentworth Place in the Mile End Rd (see 4: VI). In Sussex, John Drape of Brighton, fl 1832-67, and Stephen Leigh of Chichester, fl 1841-55, each used an almost-identical form of elaborately-decorated bowl with their names and places of work round the bowl below the rim (Atkinson 1964a: 77-8, 81 n.6; 1972e: un-numbered pl facing p.38, lower left). In Surrey, William Swinyard of Guildford fl ca.1850 used the inscription SWINYARD and GILFORD (sic) below the rim of a bowl with fluting and leaf decoration (Atkinson *in litt.* 21 January 1974). The Swinyards were a prolific pipemaking family in London, Sussex, Surrey, and Hampshire last century and into this (cf p.262 below). Finally, the style is also known from two examples from SE Dorset. A fluted bowl with *IM* immediately below the rim is in the Priest's House Museum, Wimborne Minster (not seen by this writer when examining the Wimborne Minster material 1969; illus. in Cooksey MS 2: fig 23 showing left side of bowl - Cooksey confirms (*in litt.* 22 June 1975) that there is no inscription on the opposite side); while a pipe found in the Poole area bore an armorial design on the bowl and had ISLE on the left side below the rim and BRANKSEY on the right, an apparent confirmation of a local belief that pipes were at one time made on Brownsea Island, known last century as Branksey Island and prior to that by other variants, which lies in the middle of Poole Harbour and had pipeclay deposits (Cooksey MS 1; corrections in Cooksey *in litt.* 10 October 1975).

The only evidence known at present to connect any of these SE and southern pipemakers with Lincolnshire is a newspaper reference to the death in 1854 at Gainsborough at the age of 28 of Alfred Martin "Late manager to Messrs. Swinyard, pipe manufacturers, Lambeth, London" (P.K. Wells 1974: 3): Martin may have been a local pipemaker who had gone to work in London, for a Henry Martin is also noted by Wells as a pipemaker at Gainsborough 1855-56 (P.K. Wells *loc. cit.*). Independent invention of this form of marking is always possible, but in view of the enthusiastic manner in which pipemakers plagiarized each other's designs, names, etc (pp164-6 below and refs), it seems quite likely that this specifically Lincolnshire design was adopted, perhaps initially because the coasting trade or the pipeclay trade from Poole brought some Lincolnshire pipes south, as a sales gimmick. At present all the evidence points to a Lincolnshire origin for this form of marking, it being known from nowhere else as early as it is there (i.e. pre-1800).

In the C19 there were countless varieties of decorated bowls, including ones with elaborately-modelled heads, particularly the superb products of the Crop family of East London (see 4: VI). Any popular topic or event was likely to have a pipe produced to mark the occasion, whether Nelson and Trafalgar, the Great Exhibition, music-hall hit-songs, or coronations - or in the case of McDougall's of Glasgow in 1936 with their pipe carrying Edward VIII's profile on the side of the bowl, anticipated coronations. Contemporary figures; figures from history, fiction, or mythology; regimental or similar badges; sporting scenes; even commercials; were all used (see 2: VII). Generally, ornamented bowls can be regarded as dating from the later C18 onwards unless other factors such as basic bowl form or the mark or name of a maker of known date suggest otherwise.

(For a more detailed discussion of types of markings found on pipes generally see Oswald 1970b: 233-5, pls 202-5, 208, 211-2.)

SECTION III: EARLIEST REFERENCES TO TOBACCO IN THE NEW WORLD

The spread of tobacco and smoking following Columbus's voyages is an extremely complex subject, and would require a separate study in itself. There are few scholarly works on the subject - a number are anecdotal rather than scientific in their approach, and some verge on the fictitious.

Dickson's Panacea or Precious Bane: Tobacco in Sixteenth Century Literature (1954) appears to be the most scholarly work in the field, but deals primarily with tobacco rather than smoking. Ortiz's Cuban Counterpoint: Tobacco and Sugar (1940, 1947 ed) also appears to be a serious study of tobacco but it is confined to events in the Caribbean (Dickson does not list this work in her bibliography). Corti's A History of Smoking (1930, 1931 ed) is the only scholarly study of smoking, as opposed to tobacco, which has appeared this century, but it deals with European events and does not touch on Britain in any detail. Fairholt's Tobacco: Its History and Associations (1859) is certainly the most responsible C19 source on smoking and tobacco, and so far as the former is concerned in its British background the book has still to be superceded by a better survey. Penn's The Soverane Herbe: A History of Tobacco (1901) is in some ways a useful complement to Fairholt as it makes use of later C19 work, but it has neither footnotes nor bibliography, and while this writer can identify many of the sources used a number have not been traced. Further, in some instances Penn's statements do not agree with evidence presented by other writers. In addition, the author is avowedly a proponent of smoking, maintaining that pipe-smoking is the one true method of smoking, and his continual praise of this and the implied superiority of British smoking habits tend to be wearing on the reader. Apperson's The Social History of Smoking (1914) is an excellent source for contemporary comments on smoking in England. Mackenzie's Sublime Tobacco (1957), by another writer who was an enthusiastic smoker, is in a sense a modern Penn. It is sometimes useful as a collection of information from a number of less accessible sources, but some sources are mis-quoted and the author's approach tends to be uncritical; and apart from appending a useful "much abbreviated bibliography" he frequently neglects to cite his sources. A modern critical study of the large amount of literature relating to smoking both in Britain and elsewhere is badly needed.

Heimann's Tobacco and Americans (1960) is an extremely detailed and well-illustrated account of the development of smoking and the tobacco industry in the United States. There is a useful set of references and a selected bibliography, and the work seems accurate, though some statements in the earlier sections are questionable and there are hints of pro-manufacturing propaganda against the harmful effects of smoking. Unfortunately the work is not footnoted, which would have been useful for following up some statements.

The following sections are intended only as a brief survey to give a background to the major study. This and the following section rely heavily on five works - Laufer's Introduction of Tobacco into Europe (Laufer 1924b), MacInnes's The Early English Tobacco Trade (MacInnes 1926), Corti (1930, 1931 ed), Ortiz (1940, 1947 ed), and Dickson (1954). While a good deal of the evidence overlaps there is a surprising number of places where quotations from early sources either disagree as to content or where different parts of the same source are quoted by different authors. The third section owes much to MacInnes; while the fourth is largely based on MacInnes, Tyack's "The Tobacco Trade between Bristol and Virginia, 1600-1700" pts 1 and 2 (Tyack 1935a; 1935b), Herndon's Tobacco in Colonial Virginia: "The Sovereign Remedy" (Herndon 1957), and Heimann (1960: 3rd chapt) - in some cases figures quoted by these authorities disagree.

The first Europeans to observe American Indians smoking tobacco were two members of Columbus's first expedition in 1492, Rodrigo de Xeres and Luis de Torres, who had been sent to explore Cuba. They reported Indians burning dried leaves and inhaling the smoke. None of Columbus's crew appears to have adopted the habit, but some years later Rodrigo de Xeres was imprisoned for several years for smoking.

The first notice of the use of a pipe in smoking tobacco appears to be in 1497, when a missionary, Ramon Pane, described a hollow fork-shaped piece of wood which fitted both nostils and through which priests and medicine men inhaled tobacco smoke as a stimulant. He also recorded Indians chewing tobacco for medicinal purposes, and Amerigo Vespucci two years later recorded the chewing of tobacco to alleviate thirst. In Brazil, Cabral in 1500 noted the use of two-piece pipes made of a gourd and a hollow arrowshaft.

Columbus on his second voyage, in 1493, and Pane a few years later, both refer to Indians taking snuff through a simple tube as part of their religious and medicinal ceremonies.

Cigars were also known: Bishop Bartolomé de las Casas, writing in 1527, describes both Spaniards and Indians smoking them, and Gonzalo Fernández de Oviedo y Valdés, writing the previous year, confirms that by this time Spaniards in the New World were smoking.

Cigarettes, in the sense of tobacco wrapped in a container, are noted by Oviedo in 1518 and by Bernal Diaz del Castillo during Cortés's conquest of Mexico, both referring to a cane tube which was smoked filled with tobacco. By the end of the century corn husk and paper tubes were also being referred to.

Cartier, exploring the St Lawrence in 1534, described Indian pipes - a hollow piece of stone or wood - and the way they were smoked, drawing the smoke through the mouth and expelling it through the nose.

It can thus be seen that by the time of European contact with the New World tobacco-taking in all its forms was extremely widespread.

(A recent study (Switzer 1969) suggests that the smoking of tobacco in pipes, perhaps as a religious rite, originated in coastal California before 4,000 B.C. In this area at least five species of tobacco appear native - Nicotiana trigonophylla, N. palmeri, N. attenuata, N. bigelovii, and N. clevelandii. From there pipes gradually spread eastwards into the rest of the American South-West and into northern Mexico. Pipes are not known much before 500 B.C. in the eastern United States, and in Mesoamerica not until Late Classic or Postclassic times (ca.A.D. 600-1521). Nicotiana rustica, the tobacco grown in the eastern United States prior to European contact, was also was known in the American South-West in prehistoric times, but N. tabacum, the species grown commercially today, did not reach the South-West until historic times. Both these species originated in South America. Cane "cigarettes" are known in the South-West as early as 1,000-500 B.C., though this writer is unhappy about using the term "cigarette" to describe what to him appears to be essentially variants of a pipe. The definition of a cigar or cigarette is conventionally tobacco in a wrapper (a tobacco-leaf in the case of a cigar, paper in the case of a cigarette) which is consumed along with the tobacco when smoked. Tobacco in a cane container does not appear to fall into this definition of a cigarette. Corn-husk cigarettes, however, do fall within this definition of a cigarette, but they do not appear to have reached the South-West until early in the historic period, when they may have come from Mexico.)

SECTION IV:
EARLIEST REFERENCES TO TOBACCO IN WESTERN EUROPE

The introduction of tobacco into Europe appears to be a confused subject. As already noted, Rodrigo de Xeres, one of Columbus's crew, smoked in Spain some years after the historic voyage. It has been suggested that Oviedo and some of his men brought back dried leaves to Spain as early as 1519 - Dickson (1954: 79), while not mentioning the leaves, rejects the story that Oviedo brought back tobacco-plants with him, though her argument is not entirely convincing. However, when rejecting the story that Cortés sent seeds to Spain the same year, she notes that apart from there being no evidence for this story there are no contemporary accounts of tobacco-growing in Spain at this time. The alleged reference to a tobacco-merchant in Lisbon in the second will of Christopher Columbus's son Diego dated 1523 is based on a misreading of a name Antonioto Baco (Mackenzie 1957: 71), but in 1543 the healing properties of tobacco were being recommended by a professor at the University of Salamanca (Corti 1930: 51, 1931 ed).

The earliest introduction of tobacco plants or seeds into Europe appears to have been by Luis de Goes, who brought them to Portugal, probably before 1550 (Dickson 1954: 78-80) - the trading of tobacco from Brazil to Portugal was by this time well-established, for in 1548 there were 16 Portuguese settlements in Brazil and among their exports to Lisbon was tobacco (Dickson 1954: 78 n.96). Indeed, part of the confusion as to the introduction of tobacco appears to lie in the problem of whether it was merely the product that was brought, or seeds or plants. However, as the first accounts of tobacco-growing in western European countries all appear in the decades following ca.1550, it is likely that the actual plant, as opposed to the leaves, was not grown much before the middle of the C16. Dickson rejects the story (Corti 1930: 51, 1931 ed) that Francisco Hernández de Toledo, Phillip II's physician sent to Mexico to study the flora, fauna, and minerals of the country in 1559 returned with tobacco among his 1,200 plants: she points out that this story does not appear until 1648; that the date given - 1560 - is a still later addition; that the most important Spanish work on tobacco, appearing in 1571, makes no mention of Hernández or the date 1560; and that in fact Hernández did not go to Mexico until 1571-77 (1954: 80).

Heimann (1960: 34) gives the first plantings in Belgium as 1554, France 1556, Germany 1559, The Netherlands 1561, and England 1570. Unfortunately the sources for these dates are not given, but they appear to be at least approximately correct, for a source of 1576 (quoted in MacInnes 1926: 28) says tobacco-growing had been attempted in England in 1571, and Matthias de l'Obel, the Dutch botanist, stated in 1576 that tobacco was being cultivated in Portugal, Belgium, and England; Haklyut in 1582 also mentiones its growing in England.

André Thevet, returning from Brazil, later claimed to have introduced the tobacco plant to France at a date shortly after 1555; in 1560 Jean Nicot de Villemain, French Ambassador to Portugal, sent seeds and a plant to the Cardinal of Lorraine, and subsequently sent some with the Cardinal to the French Queen Mother, Catherine de Medici. (The story that Nicot sent snuff to Catherine and that she and her sons Francis II and Charles IV used it to relieve headaches seems untrue, as does the story that the Cardinal largely popularized the use of snuff in France; snuff appears not to have been used in France prior to ca.1625, when it was introduced from the West Indies at a time when France was attempting settlements there (Dickson 1954: 92).) A.H. Dunhill (1954: 102-3, 1961 ed), suggests snuff was probably first brought to Europe by the Dutch in the earlier C17 - the word is apparently an abbreviation of *snuiftabak*, probably through the Dutch and Flemish *snuf* or *snuif* (so *OED* vol IX).

The plant was known under many names - *herbe Medicée, herbe de la royne mère, herbe Cathérinaire*, among others after Catherine; *herbe du Grand Prieur* after the Cardinal; *herbe de l'ambassadeur* after Nicot. Even the name *herbe angoulmoisine* was coined by Thevet, a reference to his being a native of Angoulême (for these and other names see Fairholt 1859: 45-7; Franklin 1906: 666; Laufer 1924b: 49, 53; Dickson 1954: *passim*; Anonymous 1951: 123-4). However, by 1564 or 1565 the term *nicotiana* was in use (Dickson 1954: 69-70), and in 1573 Nicot in his French-Latin dictionary uses the term *nicotiane* (Laufer 1924b: 50).

Some of the confusion over the initial introduction of tobacco into Europe appears to have arisen from the existence of two principal species of plant in the New World. *Nicotiana rustica* grew on the eastern seaboard of the United States, including Virginia and Florida; *Nicotiana tabacum* grew in the Caribbean area and South America. Thus if Thevet did bring tobacco to France ca.1556 from Brazil he can only have brought *nicotiana tabacum*. It has been commonly said that Nicot, while in Portugal, obtained seeds from Florida, in which case he would have introduced *nicotiana rustica*. Thus the controversy which started in the C16 as to whether Thevet (who bitterly complained that Nicot had usurped his fame) or Nicot should be given the honour of introducing the plant to France could be resolved by saying that each of them introduced one variety. This is the argument put forward by Laufer (1924b: 51-2), but Dickson (1954: chapt IV, esp. pp65 and 77-8) does not believe the plant Nicot introduced was from Florida but would have been of the type brought to Portugal before 1550.

Nicotiana rustica was certainly available to botanists in Europe by the middle of the C16, for it appears illustrated in a work published in 1553 (Dickson 1954: 33-4). It seems very probable that both varieties of plant arrived in Europe from several independent sources, and to try to place any honour as to who first brought them is as impractical as trying to decide who introduced smoking to England, which subject is discussed below. However, Dickson appears to cover all the available evidence - using the unrivalled collection of manuscripts and books in the Arents Collection of works on tobacco in the New York Public Library - and those wishing to examine the question in detail are referred to her book. (For an interesting account of the introduction of "pipe-weed" or "leaf" into the Shire, in which some of the above sources can be detected, see Tolkien 1954: 18-19).

Just what the word "tobacco" (variously spelt) originally meant is not clear. Ortiz (1940: 178, 1947 ed) and Dickson (1954: 26-7) more or less agree, quoting early Spanish sources, that the word referred to the wooden tube, either forked or straight, used for inhaling smoke or snuff from the plant, and/or to the cigars made from the plant. The story that the plant was named after the island of Tobago first appears in 1571 (Dickson 1954: 32) (according to Penn (1901: 8), Columbus gave the island this name because its outline resembles the Y-shaped tube. Another myth often quoted is a connection with Tabasco in Mexico (e.g. Heimann 1960: 27). Oviedo, writing in 1535, specifically says that the name referred to the two types of tube "and not to the plant or the sleep which comes over them [the smokers] (as some thought)", but in the same passage he also uses the term to refer to the dried leaves of the plant, to the smoke itself and (if by "smokes" he means the objects smoked) cigars (Ortiz: 1940; quotation on pp120-2, see also p.178, 1947 ed). Dickson also quotes Las Casas as saying the term meant cigars, and Cubans still call cigars *tobacos* (Penn 1901: 180; Oritz 1940: 178, 1947 ed). About the only point which appears to emerge from this is that the term was not used for the plant according to the earliest Spanish observers. Of the various native names which were recorded for the plant, only that used in Brazil, *petum* (in various spellings) became widespread, entering the French language and still being listed under *pêtun* and *pêtuner* in the *Dictionnaire de l'Académie française* (8th ed 1932-5). In English it is present in the plant name "petunia", a near botanical relative of the tobacco plant (*OED* vol VII).

SECTION V:
TOBACCO IN ENGLAND

The earliest reference to smoking in England so far noted is to a sailor in Bristol in 1556. The manner of smoking is not described, but it is said that he "did walk in the streets emitting smoke from his nostrils" and that he was chased by a hostile populace for his pains (West (ed) 1953: 27, but the original source is not given, and has so far not been traced, nor has West been able to supply it; it is repeated in Anonymous n.d. [3]: 8) (what may be a conflation of this story and the reasonably-authenticated story that pipes and smoking were introduced into England by Ralph Lane and the returning Virginia settlers in 1586 appears in Graves 1969: 9, where it is claimed that Lane "was the first man to smoke in Great Britain - in 1556"). In view of Bristol's trade-links with Spain (6: VII(b)(1)), it is possible that a Bristol sailor could have brought back cigars from there - had a pipe been used this would probably have been noted, and the reaction of the Bristol population suggests smoking was new to them at that time. Matthias de l'Obel, in a book published in 1570 noted that "You see many sailors, and all those who come back from America, carry little funnels made from a palm leaf or a reed in the extreme end of which they insert the rolled and powdered leaves of this plant" (quoted in Heimann 1960: 25), which describes what is in effect a proto-pipe.

The problem in trying to find precise dates for the introduction of tobacco and smoking into England is that many different people, and not just the famous names whose association (real or imagined) with the introduction has been preserved, must have been responsible over a considerable period of time. Among the many names given are Hawkins, Lane, Keot (or Keat), Middleton, Price, Grenville, Hariot, Drake, and Ralegh (e.g. Fairholt 1849: 50-2 and refs; T.G.H. Price 1900: 225-6 and refs; Penn 1901: 14-17, 57; Apperson 1914: 12-16), with Drake and especially Ralegh being most often given the distinction. Price and Keot are said to have smoked 'segars' of twisted leaves of tobacco (Penn 1901: 180).

However, it is now generally agreed that the earliest introduction of tobacco in any appreciable amount must have been by Hawkins when he returned from his second voyage in 1565, though the first reference to his having done so is not until 1615 (quoted in Dickson 1954: 132), sixteen years after the first attribution to Ralegh (quoted in Dickson 1954: 170) - the former would agree with De l'Obel's observation and the fact that cultivation of tobacco in England was being attempted in 1571 (MacInnes 1926: 28 quoting a source of 1576). Assuming Hawkins did introduce tobacco it must have been nicotiana rustica as he had voyaged to Florida, where it is recorded as early as 1589 that he had observed the natives smoking two-piece pipes comprising a clay bowl and a cane stem. As both smoking and growing tobacco are mentioned almost immediately after Hawkins's voyage it is likely that he and his men introduced both to England. (Unless otherwise noted, references in this section come from MacInnes 1926).

However, Harrison, who died in 1593, describes in his Great Chronologie under the year 1573 both nicotiana tabacum and nicotiana rustica, also mentioning that smoking had become very popular. This was the same year that Drake returned from an expedition to the West Indies, and the tobacco he introduced must have been the Caribbean variety, nicatiana tabacum. It seems likely, therefore, that England, possibly like France, received both major types of tobacco within a very few years. In 1582 Hakluyt could observe that tobacco from the West Indies was being grown in England.

The fact that so many people are often quoted as introducing tobacco is probably explained by many, probably all, of them contributing to either the introduction of the plant or of smoking. Drake returned with tobacco from another successful trip to the Caribbean in 1586. The story told about Ralegh being attacked by a crocodile which was frightened off by smelling tobacco on him has already been noted; the other famous story about Ralegh's smoking, his being drenched in ale or water by a servant seeing him smoking for the first time and concluding he was on fire, has a complex history. It appears in Raleghana for the first time only in 1708 (Apperson 1914: 16; cf Dickson 1954: 172), and must be regarded as apocryphal, for versions of the story, involving other characters, antedate Ralegh's execution in 1618. One version of the story, involving the famous jester Dick Tarlton who died in 1588, appears according to Fairholt (1859: 52) and Apperson (1914: 17) in 1611, though Dickson (1954: 172) gives 1638 as the date. Another version, appearing in a play of 1619 (Fairholt 1859: 53; Apperson 1914: 18), involves a Welshman newly-arrived in London. The earliest-known version involves a native of Kingston upon Hull, and appeared in 1605 (Dickson 1954: 173-4). It thus seems certain that the joke was in circulation long before Ralegh's death and did not originally involve him; indeed it has all the appearance of the traditional stories told about country yokels newly-come to town. (For other stories associated with Ralegh and smoking, and all the places where he allegedly took his first pipe - seemingly second only in number to places where Good Queen Bess slept - see Apperson 1914: 16-22; Dickson 1954: 167-74 and E. Watkins 1966: 217).

It is probably safe to say that Ralegh, a romantic figure and an inveterate smoker, did more than anyone to popularize smoking - there is a reference to this as early as 1599, and James I in his A Counterblaste to Tobacco, published anonymously in 1604 (by which time Ralegh had been disgraced) seems to refer to him when he refers to tobacco being brought in "by a father so generally hated" (Dickson 1954: 170). Ralegh, though he never visited Virginia, was responsible for two unsuccessful attempts to colonize that area; the first, in 1585, returned in 1586 and was commanded by Ralph Lane, the second went in 1587 and after arriving disappeared. Thomas Hariot, the great English astronomer and mathematician (cf C. Hill 1965: 139-44 and passim, 1972 ed) and a member of the first settlement, recorded that the colonists smoked pipes while in Virginia and on their return to England in his A Briefe and True Report of the New Found Land of Virginia published in 1588 and included by Hakluyt in the first edition of his Voyages (The Principall Navigations, Voiages and Discoveries of the English Nation) the following year (Fairholt 1859: 22-3; Dickson 1954: 134). A. Dunhill (1924: 211) cites the Dutch botanist Carl Clusius as quoting Hariot to the effect that the Virginia colonists brought back Indian pipes for smoking and that this was followed by a rapid spread of smoking, especially among courtiers, and by the manufacture of similar pipes in England (cf Oswald 1970b: 232 quoting Exoticorum Libri Decem by De l'Écluse (=Clusius)).

The household account-books of one Sir Edward Darrell for 1589 indicate he bought pipes and tobacco in that year, the latter at 3s9d-5s an oz (J.S. Lindsay 1927: 65, 66, 1964 ed), while Sir Henry Sidney, Lord Deputy of Ireland and father of Sir Philip Sidney, "within about three years of [tobacco's] first introduction to England" paid 3s an oz (Fairholt 1859: 70) - Sidney died in 1586. As at least the former price was appreciably more than an average worker was likely to earn in a week it is clear that however much contemporary observers considered smoking to be all the rage, it must have been confined to a very minor section of the population.

The assertions that smoking was introduced and spread in the later 1580s need not be regarded as a contradiction of the previous references to smoking in the 1570s and earlier: it is extremely likely that the Virginia colonists and Ralegh popularized smoking particularly in fashionable circles, whereas earlier it had been restricted largely to people such as the sailors who were smoking before 1570. By the turn of the century clay pipe smoking appears to have been relatively common everywhere in London - two Germans, Paul Hentzner and Thomas Platter the younger, comment on this in 1598 and 1599 respectively.

In England, as mentioned above, attempts were being made to cultivate tobacco, probably the nicotiana rustica variety, by 1571, and both that variety and nicotiana tabacum appear to have been growing by 1573; the latter, on the authority of Hakluyt, was certainly being successfully grown, and used for smoking, in the later C16. A. Dunhill (1924: 206) states, but without giving a source, that tobacco was being grown at Winchcombe in the Cotswolds as early as ca.1586, but according to MacInnes (1926: 83) the first record of tobacco growing there is in 1626.

In a statute of 1558 Queen Elizabeth was granted a levy on all imported commodities, but it is not until the 1590s that there are records of attempts to levy the tax on tobacco, which suggests that not until that time were there definite efforts to establish a tobacco trade. Partly this must have been due to England and Spain being at war from 1588 to 1604, for Spain controlled the tobacco-producing countries and the tobacco which reached England during these times was either booty from raiding expeditions - that brought in by Drake, for example - or smuggled out. In Cornwall, where a spasmodic tobacco trade has sprung up by 1597, a Flemish and a French ship landed and sold £2,000 worth of tobacco to the inhabitants of Penryn. The Customs official there was roughly handled when he attempted to impose tax on the shipments.

The prices paid for tobacco in the late 1590s and early 1600s fluctuate wildly as the uncertain supply enabled merchants to charge what they thought fit (MacInnes 1926: 35-6). In December 1600 a London alderman writing Sir Robert Cecil, the Secretary of State, noted that at that time "there is [no tobacco] that is good to be had for money" and that his own store of tobacco, most of which for some reason he was sending to Cecil, he had had for six months and had been unable to obtain any in the interval (quoted in T.P. Cooper 1907: 102 and MacInnes 1926: 36). The first official figures on the importation of tobacco appear only in 1602, when 16,128 lb were recorded entering the Port of London that year. As tobacco imports rapidly increased, the cost of tobacco lessened, though Spanish tobacco remained dear and by the end of the C17 had been taxed out of the market. In 1626 eight oz (presumably of colonial tobacco) cost 5s, or 9d an oz (T.G.H. Price 1900: 227, Penn 1901: 68); in 1641-42 a lb cost 16s, or 1s an oz (Morgan 1945: *passim*); in 1656 two oz cost 1s, or 6d an oz (Penn *loc. cit.*) (the 1641-42 figure was for tobacco bought by the Marquis of Hertford and was presumably the best to be had, or at any rate the most expensive). By 1681 two lb of tobacco to entertain the Marquis of Worcester and his two sons in Bristol cost only 2s (Latimer 1900: 405), or 1-1/2d an oz. Figures for tobacco imported between the beginning of the C17 and the beginning of the C18 are as follows (taken from MacInnes 1926: 150, 154, 163 and Rive 1926: 60-1):

	Colonial tobacco	Spanish tobacco
1615-16	2,300-1/2 lb	52,764-1/2 lb
1628	269,254 lb	not given
1640	1,300,000 lb	6,000 lb
1689	14,392,635 lb	not given
1693	19,866,048 lb	not given
1697-98	22,737,812 lb	27,058 lb
1709-10	23,305,735 lb	nil

Unfortunately, there is a gap in the records between 1640 and 1689, which prevents any detailed analysis of the spread in popularity of smoking during this period (there is also a gap between 1641 and 1688 in the records of shipments of tobacco from Virginia - see p.43 below). Additionally, the above figures are gross - that is, they include tobacco imported for re-exportation - and are thus not direct indicators of English tobacco-consumption: between 1689 and 1709 the average importation of tobacco was some 28,000,000 lb annually while the average annual consumption in England was 11,300,000 lb, or two-fifths of the total imported (Rive 1926: 61). However, some interesting possible relationships between size of clay pipe bowl and the rise in popularity of smoking in the second half of the C17 can be suggested (see pp76-77 below).

In the 1590s the increasing frequency of smoking produced many pamphlets condemning and praising tobacco and its uses, but it was only with the accession of James I in 1603 that an official policy of discouraging smoking was started. Finding the eloquence of his *Counter-blaste* falling on deaf ears, and himself in financial difficulties, James adopted a more direct approach in 1604 and levied a tax of 6s10d per lb of tobacco instead of that of 2d a lb which had been in effect (Anonymous n.d. [13]: 1st page) since 1590. Further financial difficulties caused him to raise the tax to 20s a lb in 1608, and in 1615, shortly after having again raised the tax,[11] he decided to make the importation of tobacco a monopoly, and sold it to two Londoners for a sum of £3,500 the first year and £7,000 per annum thereafter; they not only had the sole power to import tobacco but also to name persons for selling it.

While all this probably did bring in more revenue, its more important effects were to stimulate smuggling and home-growing of tobacco. In an attempt to counter the former, it was decreed in 1620 that all tobacco sold had to bear the king's seal and that it should be landed only in London; and in the same year the Virginia Company agreed to pay James a higher duty than that stipulated in their charter if he would suppress tobacco-growing in England and tax Spanish tobacco at double the rate on Virginian.

Neither of these measures prevented illicit tobacco being used in an ever-increasing amount. It took until near the end of the century to suppress home-growing of tobacco, and the attempts to make a monopoly of importing tobacco soon proved a failure. Spanish tobacco was totally prohibited in 1624, but this proclamation had to be revoked in 1626. In 1633 Charles I attempted to control the use of tobacco by restricting its selling to licence-holders. By 1637 there were 2,063 licence-holders in England and Wales, the greatest concentration of whom were in the West Country and the South-West. Devon, with 162, had the most of all; Cornwall had 116, Somerset 101, and Gloucestershire 92. Middlesex, next after Devon, had 119, and the City of London 84; other counties with a heavy concentration were Norfolk with 97, Yorkshire with 92, and Kent with 90 (Mackenzie 1957: 136). The concentration in the Bristol area - Gloucestershire and Somerset - is particularly interesting because a little later in this area an appreciable number of pipemakers is recorded (Oswald 1960a: 43-4, figs 16 and 17). This, together with the concentration of home-growing of tobacco particularly in Gloucestershire throughout the C17 (see below) suggests the local inhabitants were unusually fond of taking tobacco during this period.

The order that all tobacco should be shipped through London was repeated in 1627, and in 1630 and again in 1634 not only was London stipulated but the Custom House Quay was designated the only place where tobacco could be landed. All this, and the royal monopoly, and the prohibition of home-growing, was rehearsed again in a proclamation of 1637, but the next year the London monopoly was withdrawn, and Plymouth, Bristol, Dartmouth, and Southampton were allowed to import tobacco.

This only regularized a previously-existing situation. Ships would put in to West Country ports on account of leakage, real or alleged, and ask to unload their cargoes (e.g. Latimer 1900: 116, 144). In 1619, 671 lb of tobacco were officially recorded as imported at Bristol, but how much this was below the true amount landed can only be guessed at. By 1631 it appears that attempted landings of Virginia tobacco at other West Country ports were being sent to Bristol for shipment by road to London, the orders noting that care was to be taken "that none be imbezelled but that all be delivered into his Majesties Storehouses at his Custome house in London" (Tyack 1935a: 147-8). In Bristol the more straightforward course of heavy bribery was relied upon (e.g. Latimer 1900: 152-3), one official of an investigation committee admitting that he himself, by arrangement with a member of an earlier commission set up to try offenders, had landed 40,000 lb of tobacco at Bristol (Latimer 1900: 152-3). (For a description of tobacco-smuggling in the C17 and C18 and attempts to stop it see Rive 1929.)

The Civil War followed soon after the four ports noted above were allowed to import tobacco, and in the resulting relaxation of law enforcement, other ports began to engage in the tobacco trade.

The port which benefited most from the 1638 decision was undoubtedly Bristol (Latimer 1900: 144). In 1662, fourteen ships landed so much tobacco that there was not enough money in the city to pay the customs, which were estimated at about £12,000.

The run-down state of the navy resulted in large losses among Bristol merchants during the Second Dutch War, 1665-67 - in 1665, the mayor, recording the loss of "another five" ships at a loss to the citizens of £30,000, noted that hardly a ship had escaped the enemy. On the other hand, the Great Plague virtually closed the Port of London in that year: in September, 24 Bristol ships were expected home from Virginia and in November, 30 had sailed for the West Indies with 15 more to follow immediately. In July 1666 the Virginia and Barbados fleets - the former comprising 19 vessels loaded with tobacco and 4 with sugar and cotton, and the latter 13 vessels chiefly with sugar - arrived safely, to bring in £30,000 customs. The ships from Nevis, however, worth £50,000, had been captured. That year, 30 ships were preparing to sail for Virginia and Barbados. Apparently 3,300 hogsheads of tobacco carried in six ships had been captured by the Dutch in 1665 and 1666, while in 1667 nine ships with 6,000 hogsheads had been burnt by the Dutch in the James River, Virginia (Latimer 1900: 334, 245-6). Bristol merchants, their tobacco taxed by the Governor of Virginia to maintain Virginia forts, repeatedly asked the King to see that the forts were kept in repair (Tyack 1935b: 194). However, by 1670 half of the 6,000 tons of shipping owned by the city was employed in the tobacco trade (Latimer 1900: 346) which suggests that whatever losses there were during the war, fortunes could be re-made relatively easily.

In Virginia itself, Bacon's Rebellion of 1676 and the upheavals attendant on it almost paralysed the tobacco trade with Bristol, though only for a short period (Tyack 1935b: 193).

The periods of the War of the League of Augsburg, 1688-97, and the War of Spanish Succession, 1702-13, are full of complaints from Bristol merchants about the inadequacies of the naval convoys that escorted merchant ships and the losses suffered by these merchants from lost or diverted ships. By the second half of the C17, though she was at the height of her prosperity in the tobacco trade, Bristol was losing its pre-eminence in the trade not only to other southern ports but to northern ports such as Liverpool, Lancaster (Moffitt 1925: 136), and Whitehaven, which last port was being developed at this time (Marshall and Davies-Shiel 1969: 22-3, 202-3; 264-5).

The first tobacco imported through Liverpool, with the exception of an apparently isolated occurrence early in the C17 (VCH Lancs IV, 18), was in 1670. In the later decades of the C17 Glasgow merchants were illegally trading with the Caribbean and Virginia in tobacco (e.g. MacInnes 1926: 62; Mackenzie 1957: 151, 210-1) and sugar, or else circumventing the laws forbidding them to trade with the English colonies by trading through Whitehaven (Latimer 1893: 6). In the 1680s tobacco imports to the Clyde averaged under 250,000 lb a year (R.H. Campbell 1965: 40; Youngson 1966: 22), but with traditional Scottish acumen Glasgow merchants took advantage of the impending Union of 1707 to lay in vast stocks of tobacco (which prior to the Union had a lower duty on it in Scotland than in England) which they were then able to ship overland to England following Union and sell at a much lower rate than that charged by the hitherto monopolistic English merchants (cf Rive 1929: 556, 557, 558, 565). Even after the Union permitted direct trade between Scotland and English colonies, however, it was not until 1718 that the first Glasgow-owned ship entered the tobacco trade (Third SA vol 5 (1958) 96). From the 1740s onwards, thanks to the securing of contracts with the French state tobacco monopoly Glasgow reached the height of its power as a tobacco importing and re-exporting centre. In 1775, the year before the American Revolution spelt disaster for the trade and virtually stopped it altogether, the 45 million lb imported by Glasgow represented half of Britain's imports (Marwick 1964: 11; R.H. Campbell 1965: 45). Some idea of the wealth of the famous Tobacco Lords - the Glasgow tobacco merchants - has been given in a recent study (primarily designed for schoolchildren) by Nichol (1966; see also 4: IV).

The abandoning of London as the sole legal port of entry did not, however, greatly reduce abuses in the tobacco trade. Throughout the C17 London tobacconists made strenuous attempts not only to revive London's monopoly of importing of tobacco but also to give London the sole right of processing. In 1686 a Tobacco Bill was drawn up to regulate the entire trade - import, export, manufacture, wholesale, and retail - though it was never adopted. (However, many of its points were subsequently adopted.)

Meanwhile, Spanish tobacco was steadily taxed out of competition: in 1661 it was taxed at 10s the lb while all Colonial tobacco was taxed at 1s8d, and in 1685 the figures were increased to 10s6d and 1s11d respectively. By the end of the C17 very little Spanish tobacco was imported; by 1709-10, none.

The protests of the London merchants and the Tobacco Bill are interesting chiefly because of the insights they give on the methods used to evade customs, none of which, of course, was ever employed by the virtuous merchants of the nation's capital. In Liverpool's first year as a tobacco port a ship which brought in 300 hogsheads paid duty on only 60 after bribing the local official. In Bristol, where perhaps merchants were more sophisticated in their methods by dint of long practice, in addition of understating the number of barrels, advantage was taken of the varying weight of a hogshead - thus two ships which declared between them 800 casks at 250 lb each in fact contained between 1,200 and 1,300 barrels each of 400 lb.

Throughout the C17 complaints about adulterated tobacco, sold at half-price or less, abound. George Chapman in his play A pleasant Comedy entituled: An Humerous dayes Myrth, which appeared in 1599, has an amusing reference to dock leaves being given to a customer in a tavern for best tobacco (quoted in Apperson 1914: 42-43 and Dickson 1954: 188). The use of the plant's stalk was perhaps the most frequent method of making cheap tobacco, but starch, coal, dust, and various herbs were all used to good effect.[I2] One man was recorded as producing 35 lb of smoking tobacco from 10 lb of leaf. The reason such activities flourished was that the profits taken by the government and middlemen made the production of cheap, adulterated tobacco a paying proposition. At a time when good tobacco could not be sold under 1s a lb, adulterated mixtures could be bought at between 4d and 6d a lb. The amount of profit coming to the government and middlemen can be gauged from the fact that in 1671 a proposal to re-introduce the

London monopoly suggested a price of between 1s4d and 1s8d per lb to the customer of which the Virginia planter was to receive 1/2d per lb (Fairholt 1859: 71-2; Penn 1901: 132-3; MacInnes 1926: 64-74).

Even when every concession is made for exaggeration in the accounts of those who opposed smoking and over-statement among those to whom the habit was new, spectacular, and therefore noteworthy, it is difficult to avoid concluding that the spread of smoking was a striking phenomenon of the early C17. Certainly some contemporaries regarded tobacco-sellers as causing social problems akin to those caused by alehouse-keepers and brothel-proprietors: tobacco-sellers' shops, described by one person in the late 1620s as "the rendezvous of spitting, where men dialogue with their noses, and their communication is smoke", were places where fashionable people could smoke all day and achieve a state of befuddlement from the raw and potent weed, while brothel-keepers displayed tobacco pipes for their signs (Bridenbaugh 1968: 195-6). To the Frenchman Sorbière in 1663 it appeared the English were "naturally lazy and spend half their time taking tobacco" (quoted in C. Hill 1964: 123, 1969 ed), though it must be remembered (see 3: III) that smoking, the usual method of taking tobacco in England, was restricted to the lower classes in France and would thus have particularly struck Sorbière as excessive (cf remarks by Jorevin de Rochefort, Treasurer of France, on the prevelance of smoking among men, women, and children at Worcester ca.1670 (quoted in Latimer 1900: 360)).

As already noted, tobacco was being grown in England by the last quarter of the C16; but it was not until the second decade of the next century that home growing came into prominence. In 1615 an anonymous work appeared entitled An Advice how to plant Tobacco in England...with the Dangers of the Spanish Tobacco, telling which type of tobacco was best (nicotiana rustica - apparently because of soil and climate), how to harvest and dry it, and the like (MacInnes 1926: 76-8, 153). It was not until 1619 that James I became worried enough to consider interfering in the matter. In that year the Justices of Middlesex were requested to put an end to tobacco-plantations in the London and Westminster area, partly because tobacco was likely to be detrimental to health, partly because the land now being let at exorbitant rents for this purpose had formerly been used to grow food for the poor. The magistrates were instructed to see that tobacco was planted farther afield from the cities. However, in December of the same year, the growing of tobacco was forbidden anywhere in England and Wales, on the grounds that the English variety was more unwholesome than the foreign variety, and that the turning over of farmland to its cultivation was detrimental to the interests of country people. The next year James came to an agreement with the Virginia Company whereby they paid him a higher duty in return for, among other things, prohibiting home-grown tobacco. The proclamation of 1619 was repeated and the importation of tobacco restricted to the King's patentees, it being noted waspishly that it was better that tobacco "amongst many other vanities and superfluities...from beyond the seas" should be imported than that it be cultivated at home "to abuse and misemploy the soil of this fruitful Kingdom" (quoted in McGuire 1899: 458).

The logical reason for the growth of tobacco-planting in England is, as

MacInnes states, that high taxes and profits on imported tobacco had made it profitable for the home-grown variety to be developed and sold at a lower price; and in view of the extremely heavy tax imposed by James on imported tobacco in 1604, it is unlikely that he would have missed the opportunity to forbid, or at least to tax, home-grown tobacco at the same time had it been appearing in any amount. It is however, surprising that it took 15 years for a royal edict to forbid home-grown tobacco particularly when James was known to have such a strong personal dislike of the plant. Furthermore, it is not until the Virginia Company's vested interests were alleged to be in danger that James acted.

The 1615 work on how to grow tobacco is perhaps indicative of attempts being made to cultivate the plant on a commercial basis for the first time. In this case the 1604 and 1608 taxes on imported tobacco can scarcely have been the stimulation to tobacco-cultivation in England for they would appear to have been too early. However, the 1613 monopoly on importation, coming at a time when the tobacco business could obviously survive heavy taxation, together with the example of Virginia which had just started to export a rapidly-increasing amount of the crop, may have induced people in England to start serious attempts to cultivate home-grown tobacco for commercial purposes. It is probably not coincidence that the Westminster (later London and Westminster) pipemakers' guild was formed about this time, for this too suggests that smoking had become widespread enough to allow the formal organization of related industries such as pipemaking and tobacco-growing.

It must be remembered that references to smoking being all the rage are made by people recording an entirely new phenomenon, and not based on a careful study of the percentage of smokers or the amount of tobacco consumed per capita per year. Further, in 1594 an oz of tobacco cost 3s - about the weekly wage of an average labourer - and about this time 3d a pipeful was the usual charge in inns (Penn 1901: 60, 68). Even in the time of James I, while inferior tobacco cost 10s a lb - 7-1/2d an oz - best tobacco cost 18s a lb - 1s 1-1/2d an oz (Penn 1901: 68). Again, as already noted, the amount of tobacco imported before the Virginia tobacco trade opened was relatively small and fluctuated widely in amount, particularly prior to peace being made with Spain. Initially smoking must have been restricted to courtiers and aristocracy who could afford it and to sailors who could acquire tobacco cheaply. However, by 1614 Barnaby Rich in his Honestie of this Age noted that tobacco was so common that

> There is not so base a groome that comes into an ale-house to call for his pott, but he must have his pipe of tobacco; for it is a commodity that is nowe so vendible in every taverne, wine, and ale-house, as eyther wine, ale, or beare; and for apothecaries' shops, grocers' shops, chandlers' shops, they are (almost) never without company, that from morning till night are still taking of tobacco. What a number are there besides, that doe keep houses, set open shoppes, that have no other trade to live by, but by the selling of tobacco.
>
> I have heard it told, that now very lately there hath been a catalogue of all these new erected houses that have sett up that trade of selling tobacco in London, and neare about London; and if a man may believe what is confidently reported,

> there are found to be upward of seven thousand houses that doth live by that trade (quoted in Fairholt 1859: 75-6, also in Anonymous n.d. [14]: 4th-5th pages; cf Alford 1973: 5).

In 1625 too, a contemporary historian commented that tobacco-shops were more common than either alehouses or taverns (Anonymous n.d. [14]: 5th page). Whatever exaggerations there may be in these reports, it seems clear the early C17 saw a rapid spread in the availability of tobacco and in its smoking.

For the remainder of the century there was a constant battle to suppress the growing of tobacco over much of England. In 1621 James renewed his attempts to suppress tobacco-growing in London, and copies of his order were also sent to the High Sheriffs and Justices of the Peace in Kent, Essex, Middlesex, and Surrey. In 1616 there were reports of tobacco-growing from as far afield as Winchcombe in Gloucestershire, and Lincolnshire. Gloucestershire in particular seems to have immediately become the main centre of the English industry. In 1627 Gloucestershire, Worcestershire, and Hampshire were signalled out for the special attention of an appointed official, and all local Justices were commanded to help him. Forty places in Gloucestershire alone were specifically listed.

That this did not have the desired effect is evident from a royal letter in 1631 - the first of many - to the Justices of Gloucestershire, rebuking them for not enforcing the royal edicts (cf Latimer 1900: 116). From this it is clear that interests in the industry were shared by influential groups and local magistrates themselves. In 1634 the Winchcombe, Cheltenham, and Tewkesbury areas were specifically mentioned, and in the next year attempts to destroy the crop were repulsed with violence. In 1636 violence was threatened again, and in 1637 and 1638 broke out (cf Latimer 1900: 141-2). Local Justices were severely reprimanded for failing to destroy crops and assist royal authorities, yet the next year evasions and resistance from local officials were met with at the same three towns. By 1639, when Charles I had more pressing problems to worry about than enforcing tobacco laws, the plant was being grown in Yorkshire, Lincolnshire, Nottinghamshire, Worcestershire, Gloucestershire, Wiltshire, Warwickshire, Monmouthshire, Kent, Surrey, Essex, and Middlesex.

During the Civil Wars, production, now free of all the royal expostulations about the evils of growing so much tobacco, expanded both in England and in Virginia and Maryland. In 1967, during the demolition of a house in Colchester, an estimated 30 to 40 lb of tobacco, in "hands" of about a dozen matured leaves tied together at the stock, was found. Much was destroyed before the importance of the material was recognized, but the tobacco was identified as *nicotiana rustica* which had been air-cured. It possibly dates to the mid-C17 - material of that period was found in the ruins (Gant 1967b). As already noted, *nicotiana rustica* had been specified as the best species for growing in England, and by 1621 James I was urging the authorities in Essex to supress planting. (A pipe found in a cellar during excavations at New Basing House, Hampshire, in the autumn of 1968 and believed to date no later than October 1645 when the house was destroyed by Parliamentary troops was thought to contain tobacco (*The Sunday Telegraph* 8 September 1968; the owner of Basing House, the Hon P.C. Orde-Powlett, *in litt.* 23 October 1968), but analysis subsequently proved that this was not in fact the case (the Hon P.C. Orde-Powlett in litt. 6 October 1969).)

By 1650, when some degree of order had been restored, the Virginia merchants petitioned Parliament to prohibit English-grown tobacco. Cromwell, however, had a difficult role to play: he was aware of the advantages of the Virginia trade even though that colony was Royalist, but he could not afford to run the risk of trouble in the tobacco-growing countries of England. Thus, while he forbade English tobacco to be grown in an act of 1652, he made little attempt to enforce it. Petitions poured in to him protesting against the act, the Mayor of Bristol said riots had resulted from enforcement officers coming into the area, and in 1653 Parliament allowed growers to sell that year's crop - and that year's crop only - legally (Latimer 1900: 245). This was taken as the thin edge of the wedge and 1654 saw a larger crop than ever planted.

This impelled the Virginia merchants and others interested in the colonial trade to fresh efforts to suppress English tobacco. Bristol members went to Parliament with instructions to prevent the growth of English tobacco, which was to the "extraordinary prejudice" of local trade and was "daily brought into this city" (Latimer 1900: 251). A petition was presented, and the government gave way, issuing an immediate order for the destruction of English tobacco. In Gloucestershire, the people of Winchcombe raised 300 horsemen and foot soldiers to repulse the officials and troops sent to enforce the order, but other growers petitioned Cromwell for one more year's grace, and this was given them. The following year Winchcombe petitioned Parliament and again the act was suspended. (It should perhaps be noted that at this time Winchcombe was an important town and a borough - Cheltenham, by contrast, was only a small town.)

One reason for the constant suspending of the act was that Royalist agents were busy in the disaffected areas - letters in 1656 to Charles II in exile averred that 1,400 men of Bristol were ready to march within four days of the king's landing; Gloucester was said to be ready to throw open her gates to him and 600 tobacco-planters in the neighbourhood were ready to support him (Latimer 1900: 266).

In 1657 crops were once again grown in the Winchcombe area. Again the local inhabitants went to arms and again attempts to destroy the crop were unsuccessful; the same things happened in 1658. One of those in charge of the troops that year reported that he and 36 horsemen tried to destroy crops at Cheltenham but found the field guarded, the townsfolk spoiling for a fight, and the local officials conveniently absent. Cheltenham then was clearly not the respectable spa of today. The mob was ordered to disperse, but refused. While the matter hung in the balance, 200 locals arrived from Winchcombe and the troops were obliged to retreat. The same person also records that some of the country troopers were planters and dealers, and that the local Justices hindered rather than helped him. Ten men, he said, could not have destroyed in four days all the tobacco in the Cheltenham area.

The restoration of the monarchy, however, did not improve the lot of the home producers of tobacco. In 1661 yet another act to forbid home-grown tobacco was approved, this time also applying to tobacco-growing in Ireland, hitherto exempt (Fairholt 1859: 115). In 1662 the Governor of Virginia and others interested in the Virginia and Maryland trade petitioned Parliament that the bill be immediately put into effect, and the Farmers of the Customs the same year urged the implementation of the bill on grounds of large losses in customs dues (cf Latimer 1900: 317). The officials of Gloucester, Worcester, and Hereford, however, proved extremely reluctant to enforce the act when ordered to do so. It was reported that the militia were again to be used to destroy the crops, but so ineffective was all this that in 1663 the crop was being grown in Monmouthshire and Oxfordshire as well. Renewed agitation from the Surveyor of the Farmers of Customs and colonial merchants and planters resulted in another bill which pronounced heavier penalties. 1664, however, saw no more success, Winchcombe and Evesham resisting violently so that troops were called for. The next year events proved that not even troops with the county levies were sufficient to handle the situation, which clearly indicates the extent of the industry and its profitable nature.

In 1666 there were riots in Cheltenham and Winchcombe district and the Sheriff of Gloucester almost lost his life. The crop by now was being grown in Warwickshire and Brecknockshire as well as the others listed earlier. The next year Essex and Yorkshire were included; and Bristol petitioned the government about home-grown tobacco interfering with its American trade (cf Latimer 1900: 339-40). In 1668 Flintshire and Shropshire were added to the list.

The 1670s and 1680s are filled with the by now familiar repetitions and strengthenings of Parliamentary acts, and yearly attempts to destroy the crops. Troops were sent on several occasions and violence broke out. Wiltshire and Lincolnshire appeared on the list of counties; Gloucestershire and in particular the Winchcombe area were still the worst offenders. In the 1680s troops were sent out nearly every year, and it seems this finally did have the effect of discouraging tobacco-planting, for during this period the industry (for such it was) declined rapidly, and appears to have died in the 1690s. English-grown tobacco may not have been so rank as it was sometimes accused of being, for in the second half of the C17 Virginia tobacco was becoming cheaper and it is difficult to explain the widespread growth of the plant and the tenacity of its planters solely in terms of cheapness (cf MacInnes 1926: 102). However, it does seem reasonable to suggest that the ultimate demise of the home tobacco industry was assisted by the growing specialization in, and better climate for, curing tobacco in the American colonies resulting in a (relatively) milder product.

It is not coincidence that before 1700 snuff-milling appears in Wiltshire and continued until the 1960s, Devizes becoming one of England's principal snuff-making centres. Tobacco is still manufactured in the county (W.E. Brown 1959: 240-2; K. Hudson 1965: 211, 1968 ed). Clearly tobacco had become such a profitable business that it was worth importing it into the area, when local growing had been abandoned, in order to continue the business.

However, outside SW England tobacco-growing appears to have continued, or at least to have been subsequently revived. According to Fairholt (1859: 4, 143-4) tobacco was grown extensively in parts of Yorkshire - the Vale of York and the North Riding (Ryedale in particular) being mentioned - into the last quarter of the C18. In Ryedale, tobacco-growing by a person formerly employed in the business in Virginia was carried out in a most sophisticated manner. Because the acts of the English parliament in the C17 against tobacco-growing did not affect Scotland, the area around Kelso and Jedburgh in the Borders was producing tobacco during the American Revolution, when trade with the colonies was disrupted; this was stopped by an act of the British parliament in 1778 which limited the amount grown to no more than would occupy half a rod of ground and the uses to medicine and as an insecticide (Fairholt 1859: 4). Curiously, the same act revoked the law forbidding the growing of tobacco in Ireland in force since 1661 (Fairholt 1859: 4, 144), but growing was once more forbidden in 1828 - it was never grown in Ireland to any extent, unlike its botanical relative the potato.

Between 1886 and 1889 unsuccessful attempts were made to grow tobacco of an acceptable quality in Britain. During the first decade of this century financial inducements were made to tobacco-growers in Ireland, Scotland, and England, the prohibitions on tobacco-growing in these countries being rescinded 1907-10, but with little success, and the schemes were abandoned in 1923. Between the world wars the government of Eire encouraged the production of home-grown tobacco, but it proved unpopular with Irish smokers and the scheme was eventually abandoned. In April 1948 the British government permitted amateur home-growers to produce small amounts of tobacco for personal consumption free of duty; later they were allowed to have up to 25 lb of dry leaf cured co-operatively without paying duty (Mackenzie 1957: 145-7).

SECTION VI:
THE 17TH-CENTURY COLONIAL TOBACCO TRADE

The permanent settlement of Virginia began in 1607 at Jamestown, and three years later John Rolfe, future husband of Pochahontas and newly-arrived from England by way of a shipwreck on Bermuda, began experimenting with the local tobacco plant, nicotiana rustica. Rolfe appears to have been the first settler to do so - Captain John Smith, the founder of the colony, states that none of the native crops, not even tobacco, was planted at first - and in view of the privations suffered by the early colonists, particularly during the "starving time" of the 1609-10 winter, food production must have occupied every settler's mind.

This being so, it is perhaps surprising that Rolfe should have immediately experimented with tobacco, and continued to do so for three years. Possibly he was intent on producing a commodity profitable to the Virginia Company. He must have been aware of the popularity of tobacco in England; Heimann (1960: 47) says that Rolfe was a confirmed smoker before going to Virginia. Finding the local tobacco poor in comparison to that grown by the Spaniards and sold at a high price in England, he experimented in 1611 and 1612 with nicotiana tabacum seeds brought from Trinidad and Venezuela. In 1613 he sent his first crop to England and a spectacular increase in demand followed - 2,300 lb were exported in 1615; 20,000 lb in 1617; 41,000 lb in 1618. From this, the figures increased fairly steadily until 60,000 lb were exported in 1622. In 1626, however, the amount exported had jumped to 500,000 lb, and in 1629 to 1,500,000 lb. During this period the price per lb remained between 2s and 3s, but by 1630 over-production had caused the bottom to fall out of the market, and while 1,500,000 lb were exported the price was but 1d a lb. It rarely went above 2d a lb for the rest of the century, though the weight exported rose to 20 million and more lb a year. Unfortunately, figures for the amounts of tobacco shipped from Virginia are not available for the period between 1641, when 1,300,000 lb were shipped, and 1688, when 18,295,000 lb are recorded (Herndon 1957: 47). In 1693 the amount of tobacco imported into England was 19,866,048 lb (Rive 1926: 61); in 1697 the amount exported by Virginia was 22,000,000 lb (Herndon 1957: 49). In the following century Virginia production climbed fairly steadily until the Revolution - before and after this between 50 and 60 million lb were being exported. The prices, however, seldom rose beyond a few pennies a lb until towards the end of the C18 (Herndon 1957: 1-3, 46-9).

(Laufer (1924b: 18, probably quoting Penn 1901: 207) states that the tax imposed by James I in 1604 nearly ruined the Virginia tobacco trade, and that in 1611 English imports of tobacco from Virginia fell to one-sixth, or 142,085 lb. This is clearly in error, for Virginia, as already noted, was only founded in 1607 and her tobacco trade with England only started in 1613. Penn gives his source - a rare occurrence - as "Stith": presumably this is William Stith's The History of the First Discovery and Settlement of Virginia, first published in Williamsburg, Virginia, in 1747 and subsequently appearing in another edition in London in 1753[13]).

In the 1620s attempts both by colonial officials and by James I to base the colony's economy on a wider foundation had failed, and the slump of 1630 was the direct result of over-planting of tobacco glutting the market. In 1639, all inferior produce and half the good was burnt in order to reduce the total to the 1,500,000 lb level of 1630, but this gave only temporary relief. Having committed itself to the tobacco industry, however, the colony took the only course open and expanded its production as rapidly as possible in order to recoup the drop in price by sheer volume of exports. Thus planters pushed westwards to find fresh land, or added to their bulk shipments with dirt, straw, or scrap. The big slave-manned plantations first appeared ca.1690. Periodic attempts throughout the century to widen the Virginian economic base fell on deaf ears (MacInnes 1926: passim; Rive 1926: passim; Herndon 1957: passim; Heimann 1960: 3rd chapt passim).

In the preceding section it was noted that Spanish tobacco was imported during the C17 but that by the end of the century it had been taxed out of the market. For economic reasons, and at the urging of the Virginia Company, James issued two proclamations in 1624 and 1625 forbidding the importation of tobacco from other than Virginia and the Somers Islands (Bermudas); and in 1625 Charles I ordered all foreign tobacco in the country to be exported forthwith and instituted a royal monopoly of purchase. However, Spanish tobacco was held to be so much better than Virginia and was so much smuggled that in 1626 50,000 lb were permitted into the country and this was made an annual concession. Renewed Virginia pressure rescinded this permission, but by December 1627 the impracticability of enforcing a ban on importing Spanish tobacco was realized and the annual allowance of 50,000 lb reinstated (MacInnes 1926: 158-60; McGuire 1899: 459).

It has been estimated that in 1697 seven-eighths by value of English colonial trade was with sugar and tobacco colonies, and of this tobacco occupied by far the larger proportion (G.L. Beer Old Colonial System vol I chapt 1, 41-2, quoted in MacInnes 1926: 135-6). This of course involved more colonies than Virginia, though that colony was by far the most important. Maryland, where tobacco had been grown since the 1630s, similarly depended on tobacco for its prosperity, and tobacco had been grown in Bermuda from the 1610s. It was also grown in the various English possessions in the Carribean. By 1674 Carolina was producing ca.1,000,000 lb annually (MacInnes 1926: chapt VI). However, as late as 1792 Virginia supplied more than half of the tobacco exported by the eastern United States from Massachusetts to Georgia (Fairholt 1859: 321).

During the second half of the C17 there are numerous complaints sent to England not only about English-grown tobacco but about the poor prices generally and the losses suffered during wars from reduced trade and captured and sunk cargoes. Pleas were made for a law to prohibit planting in certain years so that the backlog could be used, but this was never put into effect, partly because of the selfishness of colonial planters and partly because England did not wish to lose a large part of its annual revenue from tobacco customs by such an act (MacInnes 1926: chapt VI; Tyack 1935b: 195). (For a survey of duties levied on tobacco from 1590 to 1968 see Anonymous n.d. [16].)

SECTION VII: METHODS OF TAKING TOBACCO

(a) INTRODUCTION

Smoking was, of course, not the only means of taking tobacco - snuffing and chewing are as old as smoking - nor is the clay pipe, or indeed any other type of pipe, the only means of smoking tobacco. This section examines various methods of taking tobacco other than by clay pipe, with special reference to those which were or became popular during the C19 - the century when the clay pipe declined and in England virtually died as a means of smoking; and when what in Britain at least are the two most common methods of smoking, the cigarette and the brier pipe, first appeared.

(b) SNUFF

Snuff, as previously noted, was known in the New World in pre-Columbian times. According to Penn (1901: 260) snuff "was at first almost the only mode of taking tobacco" smoking coming later, but this statement does not appear to be borne out by the available evidence.

According to A.H. Dunhill (1954: 102-3, 1961 ed), the Dutch first brught snuff to Europe in the earlier C17; and ca.1625 the French appear to have introduced it to their country from the West Indies (Dickson 1954: 92). The Dutch, with the Portuguese, appear to have spread the use of tobacco widely in Asia, and are said to have introduced it into India in 1599, to Java in 1601, and to China in 1609 (Penn 1901: 22, 36, 50; cf Laufer 1924a: 38) - according to Penn (1901: 50) the Korean word for tobacco means Dutchman - but one would have thought snuff would have reached at least Spain at the same time as the other forms of tobacco-taking. Snuff was said to be the most common method of taking tobacco in Spain before 1650 (quoted in OED vol IX s.v. smutchin, noting a source actually written in 1646 - see below), and large amounts which had been shipped from Havana for Spain were captured by the British at the battle of Vigo Bay in 1702 (see below).

According to Penn (1901: 35) it was the prevelance of snuff-taking in Italy, Spain, and Austria which caused Pope Urban VIII to threaten excommunication in 1624 to all who took tobacco into churches; in fact the interdiction was made in 1642 (Corti 1930: 128-30, 1931 ed) with specific reference to the diocese of Seville's appeal to the pope for action, and was repeated in 1650 (Corti 1930: 130-1, 1931 ed) with specific reference to St Peter's in Rome itself. On both occasions snuff is mentioned (cf Dickson 1954: 153-4, 151). Penn also notes (loc. cit.) that the growing prevalence of snuff caused Louis XIII in 1635 to prohibit for a short time the sale of tobacco save by apothocaries on the order of a doctor; but Corti (1930: 150, 1931 ed), probably more accurate, says the order was that of a police official apparently unaware that his action was cutting the revenue from Richelieu's tax on tobacco of six years previously, and that the order was soon revoked.

Dickson (1954: 178-9) maintains there is absolutely no evidence for the use of snuff as late as ca.1590 in England, but it appears to have been known there by the beginning of the C17 (Laufer 1924b: 39-40, quoting Henry

Buttes's *Dyets dry diner* of 1599 and Thomas Dekker's *The Guls Horne-booke* of 1609;[14] MacInnes 1926: pl V, showing an illustration of 1617; cf Fairholt 1859: 123, referring to a snuff-box *temp.* James I). (Penn (1901: 220), quoting the closing sentences of James I's *Counter-blaste* of 1604, makes James refer to snuff, but neither the same section quoted by Dickson (1954: 156) nor the copy of this work available to this writer (Stuart 1604) includes the sentence "(Look to it, you that take snuff in profusion!)" quoted by Penn.) According to Penn snuff appears to have been the favoured method of taking tobacco among the Puritans. Most authorities appear agreed, however, that it was not until after the Restoration in 1660, and the return of Charles II and his court with French influences, that snuff became the aristocratic way of taking tobacco in England (Corti 1930: 188, 1931 ed); and by ca.1700 snuff was becoming increasingly popular (Laufer 1924b: 40, 39; Rive 1926: 63) in a desire to imitate French manners. (Penn, however (1901: 262), followed by Laufer (1924b: 40), says that it was the Great Plague of 1665 which brought snuff into use, on account of its supposed medical virtues, and that Dutch influence coming in with William of Orange further popularized it.)

The capture of a vast amount of snuff on Spanish ships taken at Vigo Bay in 1702 increased in use in England, the snuff being sold by the sailors, who had been given 50 tons as prize money, by the waggon-load at Plymouth, Portsmouth, and Chatham for as low as 4d a lb (Fairholt 1859: 258-9; Penn 1901: 263; cf Trevelyan 1942: 315, 1946 ed). Beau Nash decreed at the beginning of the C18 that smoking was vulgar, and as the century progressed snuff supplanted smoking to a considerable extent among all social classes and with both sexes (for a discussion of this, and its effect on the pipemaking industry, see 3: I). It is recorded that at Bath during its heyday as a spa under Beau Nash ladies in the baths received from an attendant "a little floating dish like a bason, into which the lady puts a handkerchief, a snuff-box and a nosegay" (quoted in Gadd 1971: 61). In the early C18 Defoe could comment that his servant-maid took her snuff with the air of a duchess, and in his time fashionable snuffs cost from 8s to 32s a lb; the accounts of a local Somerset family indicate at least a lb of snuff was consumed there a week. Snuff mills became common in the Bristol area, occasioning in 1756 protests that grist mills should not be used for any other purpose than grinding corn (Latimer 1893: 302-3, 269, 430). In *A Description of all Trades*... published in 1747 it was noted that

> It is but a few years since [the snuffmakers'] trade made any figures in shops, which now appear almost everywhere, plainly showing that not only the practice of making snuff is greatly increased, but that making and selling it must be profitable (quoted in Alford 1973: 6-7),

but Campbell's *The London Tradesman* of the same year observed that "This Trade is abundantly profitable, but now much over-stocked" (R. Campbell 1747: 274, 1969 ed), suggesting the market had been flooded by too many people trying to cash in on the rapid rise in popularity of snuff.

According to Penn (1901: 88) the popularity of smoking only drew level again with that of snuffing in the middle of the C19, when cigars had become the socially-accepted means of taking tobacco - snuff certainly seems to have been popular well into last century (Fairholt 1859: 285; cf Mackenzie

1957: 251). This would agree with evidence from the records of the famous London tobacconists Fribourg and Treyer, which indicate that in 1820 the firm sold only a tenth the quantity of cigars and tobacco it sold snuff and that in 1845 the sale of snuff still predominated. In 1850, however, cigars and tobacco were drawing level with snuff and in 1859 the former two began to take the lead, snuff declining in use, at least among the classes Fribourg and Treyer supplied, almost dying out by the end of the century (G. Evans 1921: 13, 39). George IV (D 1830), both as Prince Regent and King, patronized Fribourg and Treyer (G. Evans 1921: 13-15), and clearly snuffing was in fashion as late as the 1830s, whatever popularity the cigar was having from the 1820s (Sub-section (e) below). The firm's first mention of cigarettes occurs in 1852 but very few were sold until 1866 when Russian cigarettes became popular (G. Evans 1921: 37). According to Morton (1935: 182), the firm maintained that what helped kill the snuff habit was the fashion for white handkerchiefs.[15]

There is other evidence (see below) that cigars were losing their popularity at least outside the upper classes from before the middle of the C19 and that this coincided with a revival of pipe-smoking. However, Fribourg and Treyer served royalty and no doubt their upper-class patrons continued to use first snuff and then cigars long after their general popularity had gone - Evans notes (p.35) that their sale of cigars increased considerably after 1850. (Indeed, until the 1960s, cigar-smoking in Britain was largely the mark of male aristocracy and by 1900 (see Sub-section (f) below) a decidedly minor way of taking tobacco.) A. Deane's suggestion (1914: 10) that snuff ceased to be fashionable with the accession of Queen Victoria - who hated tobacco in all its forms (Corti 1930: 222, 1931 ed) - may reflect the eclipse of snuffing at court after its fashionableness under George IV (see above), though there is no evidence that the queen's disapproval of tobacco had any effect on society - or even on her son, the future Edward VII, who smoked.

According to one source, snuffing was very common in the United States in the middle of the C19 (Enc. Brit. 1960 ed: vol 5, 704); but according to Heimann (1960: 117-8) snuff with its aura of British gentility went out following American independence to be replaced by chewing-tobacco, partly, Heimann suggests, as a conscious desire to be different and partly because chewing was practical to an outdoors nation.

In Ireland snuff was said before 1646 to be as popular there as was smoking in England (quoted in Penn 1901: 262; Laufer 1924b: 40; cf MacInnes 1926: 50 and OED vol IX s.v. smutchin - Mackenzie 1957: 163-4 notes that James Howell, the author of this reference, published in 1650 but written in 1646, had been in Ireland in 1639, which suggests the observation on the popularity of snuff goes back to before 1640). Snuff-taking was still general in Ireland a hundred years later, when Wesley condemned its use (Penn 1901: 262), and as late as the 1840s snuff-mills appear to have been quite common in Ireland (Freeman 1957: passim).

However, pipe-smoking was certainly known in C17 Ireland, and pipes of that period have been found there (Fitzgerald 1855: 307-8, bottom illus. facing p.304, 309-10 editor's note; Anonymous 1855; Ronayne 1903; Rynne 1964: passim). Indeed, the first two of these references note Bristol-made pipes datable to the second half of the century (see 6: VII(b)). A shipment of pipes from Bristol - persumably Bristol-made - to Ireland is noted in 1637 (Kearney 1959: 136-7) though the extremely small figure, ten score, is perhaps a mistake for ten gross. Edward Abbott, a founder-member of the Bristol pipemakers' guild in 1652, recorded in 1653 and 1654 that he had been a pipemaker in Waterford in 1641 when the Irish uprising had occurred, and that the Irish had expelled all Englishmen except for a few craftsmen with skills the Irish did not have, including Abbott's (Nott and Ralph (eds) 1947: 117-8). In 1619, when Waterford was being incorporated, an appeal was made to Bristol citizens with useful trades to settle there: there is no record of any who did, but possibly Abbott was one, either at this time or - more likely in view of the first Bristol pipemaker only appearing in 1619 - later (Nott and Ralph (eds) 1947: 4; Latimer 1900: 71). Among the charges listed against Strafford at his impeachment in 1641 was that he had instituted monopolies on a number of items exported to Ireland, including tobacco and tobacco-pipes, though in the event the latter monopoly was never discussed (Miss C.V. Wedgwood in litt. 20 January 1969). According to T.P. Cooper (1907: 104; also SPD Chas. II 16 Aug 1666) a certain Col William Legge appealed in 1666 for a grant to make and sell tobacco-pipes in Ireland "as persons had in previous years obtained Royal Letters Patent for the sole rights of retailing tobacco in various towns and districts", but the sequel is not recorded.

Tobacco was Ireland's major import from before 1660 until the early 1700s, much of it coming direct to Cork, Galway, and Belfast before the Navigation Act of 1671 and again in the period 1680-85. In 1683 and again in 1695 over 2,800,000 lb were imported. In the C18, however, the amount imported as a percentage of total Irish imports steadily dropped from 26% in 1698 to 1% and 5% in 1788 and 1798 respectively (L.M. Cullen 1968: passim). The C17 figures suggest that if the Irish did indeed prefer snuff to pipe-smoking that early it was hardly occasioned by a scarcity of tobacco, though tobacco was probably expensive compared to English prices and pipes may have been relatively scarce and expensive.

The popularity of snuff in Scotland may have started as early as it did in Ireland (cf MacInnes loc. cit.). Certainly, as is discussed in detail in 4: IV, tobacco was known, used, imported, and even grown in Scotland from the early C17. Prior to granting a monopoly in 1616 for the importation of tobacco into Scotland, James VI had first forbidden its importation, then finding this being evaded and "the country...ever universally filled with tobacco, and public and common merchandise made of the same" had imposed a tax, which, however, had only encouraged smuggling. In 1634 Charles I granted a monopoly for the selling of licences to retailers of tobacco partly in order to reduce abuses rampant from the "ungoverned sale and immoderate use of tobacco" in Scotland. This monopoly was revoked in 1641, but in 1669 Charles II granted a monopoly to tax tobacco, causing according to a contemporary historian considerable hardship, custom having made tobacco "as necessary as nature had made meat and drink" (for references see 4: IV). Unfortunately, none of these references state how tobacco was being used, nor does a reference to the fourth Earl of Montrose, who died in 1626, describing him as "a devotee of tobacco" (Mackenzie (1957: 151), who appears to be using Chambers's Domestic Annals of Scotland..., one of the sources cited above, talks of the 1634 monopoly as being intended to control smoking and snuffing, but Chambers mentions neither usage.) Refernces to pipe-smoking and pipe-manufacture in Scotland in the C17 are known, and C17 pipes are known from excavations (see 4: IV); but an account of Scotland by an anonymous Englishman published in 1702 certainly indicates that by the end of the C17 snuffing was very common in Scotland, more so than smoking was, the writer noting that the Scots were

> fond of tobacco, but more from the sneesh-box [snuff-box] than the pipe. And they have made it so necessary, that I have heard some of them say, that, should their bread come in competition with it, they would rather fast than their sneesh should be taken away. Yet mostly it consists of the coarsest tobacco, dried by the fire, and powdered in a little engine after the form of a tap, which they carry in their pockets, and is both a mill to grind, and a box to keep it in (quoted in Chambers 1858: II, 494).

(Mackenzie (1957: 169) notes a story, apparently prevelant about the beginning of the C18 in Germany, that Scottish soldiers of fortune killed in the Thirty Years' War, 1618-48, had been found to have soot on their brains as a result of snuffing. Corti (1930: 173-4, 1931 ed) records a more generalized version of this story, not mentioning Scots and involving smoking, not snuffing - whether smoking could or could not deposit soot on the brain was earnestly debated by doctors and others in Germany during the second half of the C17. Mackenzie's version may reflect a memory of Scots being noted snuffers before the middle of the C17, however.)

The Scots' reputation for manufacturing snuff appears to have started as early as their connections with the American tobacco trade in the earlier C18 (Heimann 1960: 65; cf a 1745 reference to "Scotch Snuff" sent to Virginia in I. Noël Hume 1969b: 39), and their reputation as snuff-takers certainly existed from long before that time and continued well into the C19 (Laufer 1924b: 41-2; cf Fairholt 1859: 274-84, cf 135; N&Q 24 July 1875: 67; Penn 1901: 262; Apperson 1914: 244-50; Mackenzie 1957: 190-2; Prebble 1968: 41; Cerveri 1970: 7; Barnett, Klein, and Thomas 1970: 27 fig 27.) The tradition of a wooden statue of a Highlander as the sign for a snuff-merchant's shop supposedly originated from a signboard - "ye Highlander, Thistle & Crown" - used in 1720 by one David Wishart, a snuff-merchant in Coventry St, London, who also used it to indicate a Jacobite rendezvous (Heal 1947: 170). The signboard illustrated by Heal shows a Highlander carrying a targe and wearing a bonnet and a short kilt-like dress, with a tobacco-roll at his feet, facing a large thistle growing out of the ground with an equally-large crown suspended above it; the same scene appears on Wishart's trade-card bearing the date 1720 illustrated by Meadows (1957: 38 fig 6), where Wishart is described as making and selling "all sorts of Snuff", including "high and low dry'd Scots Snuff". A. and C. Scott (1966: 127-9) talk of the 1720 trade-card depicting the figure wearing the trews, not the kilt later universal on the wooden figures, but the Scotts are not an accurate source, and in this case they are plainly wrong. A traveller in Scotland visiting a cattle-fair in 1723 observed that

> The Highland Gentlemen were mighty civil, dress' in their slashed short Waistcoats, a Trousing (which is Breeches and

> Stockings of one piece of striped stuff) with a Plaid for a Cloak and a blue Bonnet. They had a Ponyard, Knife and Fork in one Sheath, hanging at one side of their Belt, their Pistol at the other, and their Snuff Mill before, with a great broad Sword by their side (quoted in Grant 1961: 69).

Their "Attendants" were described as wearing "belted Plaids, girt like a Woman's Petticoats down to the Knees, their Thighs and half the Leg all bare" - in other words, the precursor of the kilt - and from these descriptions it appears that it was the Highland gentry with whom snuff was particularly associated and that the "Snuff Mill" (i.e. mull) was considered part of the accoutrements of the well-dressed Highland gentleman (for snuff mulls see Scott and Scott 1966: 122-4, illus. on p.123). This might agree with the Scotts' story of a trousered figure appearing in some early depiction, but if so it is not on Wishart's sign or card (unfortunately, the Scotts do not distinguish among their sources: they list Larwood and Hotten's The History of Signboards,... (1866), Heal's Signboards of Old London Shops (1947), and Meadows's Trade Signs and their Origins (1957) in their "Abbreviated Bibliography", but none of these refers to a figure wearing the trews).

At least among the Lowlanders, however, snuffing appears to have been a standard practice among all classes, Burt, writing in the later 1720s, commenting acidly at one point of a case some years earlier where a friend of his, moving into a house "within Half a Quarter of a Mile of Edinburgh, which was then about to be left by a Woman of Distinction" found among numerous other disgusting sights "the Walls near the Servants' Table, which had been white, almost covered with Snuff spit against it" (Burt 1754: I, 149-50, 1874 ed); later, he cited an example "of the People's Disaffection to the present Government" in a church in Aberdeen, where when the king was prayed for by name "the People all rose up as one, in Contempt of it, the Men and Women set themselves about some trivial Action, as taking Snuff, &c.," (1754: I, 223). As is discussed in more detail later (pp 348,349 n.6), Burt noted that smoking in Scotland, except at wakes, was "very rare".

It has been suggested (Scott and Scott 1966: 122) that the Scots' partiality to snuff comes from their C17 ties with France, but the "Auld Alliance" must have been very much in eclipse in the later C16 and earlier C17 following the Scottish Reformation, and it is unlikely that this is the cause of the Scottish snuff-taking habit. The C18 Scottish tobacco trade - virtually confined to Glasgow - was tied to re-export to the Continent, chiefly France (see 4: IV), and this may well have stimulated snuff-production and snuff-taking in Scotland (cf Heimann 1960: 65), but there must have been an earlier predilection for snuff in Scotland - certainly Ireland was not involved in the snuff trade, yet snuff was extremely popular there before 1650 (see above). It takes a lesser quantity of leaf to produce enough powder for snuffing than flake for smoking, and in addition the stalk as well as non-tobacco ingredients are used in snuff-manufacture (Rive 1926: 63), so that snuff would be an obvious substitute where tobacco was relatively scarce and expensive - the fact that the 1723 observer noted above could record that it was the Highland chiefs for whom a snuff mull was evidently considered de rigueur reinforces the suggestion that tobacco at that time was expensive.

Scottish ships were not allowed to trade with English colonies prior to the Union of 1707, which must have considerably restricted Scottish tobacco consumption in the C17, while all products for Ireland had to be re-exported there from England in English ships, which must have increased costs, including that of tobacco, considerably. Tobacco-smuggling was common (e.g. Rive 1929), but L.M. Cullen (1969: passim) has argued that smuggling did not play the prominent part in Irish economy that has been assigned it. Shortly before the middle of the C18 evidence suggests ca.300,000 lb of tobacco smuggled annually compared to legal imports of between three and four million lb. Only in the 1780s, and the 1790s before the outbreak of war, did tobacco-smuggling rapidly rise (L.M. Cullen 1969: 171 and n.102).

Certainly the Scots do not appear to have manufactured tobacco-pipes to any major extent prior to the C19. After the Union the Scots were able to import their own tobacco, but Ireland was not to be so favoured for nearly another century and had to rely on illegally imported shipments or additionally expensive ones reshipped from England, especially through Bristol. Thus when tobacco shipments lessened during the wars at the end of the C18 and the beginning of the C19 the amount of tobacco consumed in Ireland went down much more drastically than it did in England (Clapham 1926: 246, 1939 ed). However, if tobacco could be brought to Ireland, pipes could also - indeed, as noted above, Bristol pipes are known to have been shipped there and some have been found - so that the preference for snuff may have been to some degree a national trait, reinforced by the relatively high cost of tobacco and pipes. Scotland's preference may have had a similar origin.

In Dundee in the later 1920s snuff, which was used especially by the women workers in the city's jute mills, cost 8d an oz; in 1969 it was costing 6s8d an oz but one newsagent-tobacconist was still selling 8-9 lb a month, two-thirds of what he sold more than 40 years previously (D. Phillips 1970: 440-1). Even today, in both Scotland and England, the use of snuff by two widely divergent social groups, an upper class and an older segment of the working class, continues: at least one Bath tobacconist has a wide range of scented snuffs for the former while this writer has seen the latter using snuff in public houses in Bath.

(The manufacture of snuff is described in A.H. Dunhill 1954: 102-15, 1961 ed; also in Anonymous n.d.[22]: last two pages. For a description of earlier snuffs see G. Evans 1921: passim.)

(c) CHEWING-TOBACCO

This habit, like all other forms of taking tobacco, originated in the New World. It never appears to have been an important means of taking tobacco except in the United States from the middle of last century (Enc. Brit. 1960 ed: vol 5, 705; Nichol 1966: 100) when it was the most common method used, to the general disgust of European visitors such as Charles Dickens who commented on the state of the Senate carpets covered in tobacco-juice. The comments of L.B. Coles, a Massachusetts doctor with a pathological hatred of tobacco writing in the mid-C19 (see also below, p.59), suggest that at that time chewing was by far the commonest method of taking tobacco in the United States, other forms of consumption hardly being mentioned (L.B. Coles 1851: passim). Chewing remained the most common method of taking tobacco in the United States until the end of WW I, when it fell rapidly in popularity to below the lb-per-capita levels for cigars and smoking- (primarily pipe-) tobacco and was completely overshadowed by the astronomic rise of cigarettes (Heimann 1960: graph on pp244-5). Chewing-tobacco production reached its zenith in 1897, when 200 million lb were consumed, and fluctuated below and up to that level until 1918 and the rapid drop in popularity of chewing-tobacco (Heimann 1960: graph on pp178-9). Tobacco-tags - small tin tags pushed into each plug as advertisements - first appeared ca.1870 and continued in use until ca.1937 (M. Williams 1973: 28, 29; Heimann 1960: 136, 137).

There are periodic references to chewing tobacco in the later C17 and the C18 in England (Laufer 1924b: 44, 45-6). Fairholt (1859: 123) reproduces a scene from a snuff-box dating from the time of James I which shows a cavalier in a rather affectd attitude spitting into a bowl, and goes on to say that General Monck sanctioned the custom at the time of the Restoration, 1660, and that it was usual for gentlemen to sport silver basins as spitoons. Penn (1901: 77) repeats these stories, and Apperson (1914: 77; cf Mackie 1964: 231, 1969 ed) mentions that Monck was said to have "indulged in the unpleasant habit...and to have been imitated by others; but the practice can never have been common." Laufer (1924b: 45) doubts the stories. The chewing of tobacco appears to have been known among the poor in England last century, for in 1865 a defender of the "pew system" in the Church of England whereby seats were subscribed for, leaving few or none available for the poor of the parish, talked of defending worshippers from "those whose habits are wanting in the ordinary decencies of life" and who indulged in "an odious American habit, which is really distressing to people of delicacy, or even of common decorum" (quoted in Inglis 1963: 51) - the observer cannot bring himself to say what the odious habit was, but it was almost certainly chewing tobacco; according to A. and C. Scott (1966: 143), triangular wooden spitoons filled with sawdust were part of the furnishing of pews in at least one Essex church as late as 1861. Again according to the Scotts (loc. cit.), spitoons were being made until the 1890s. In the early C20 chewing tobacco was thought by people in Great Yarmouth to be characteristic of the Scottish fishermen who came south to the East Anglian fishing-ports with their womenfolk to take part in the herring season - one Yarmouth herring-curer, born in 1906, recalled being told as a boy

> never to walk down King Street because the men [Scottish fishermen] used to stand there in groups. They were quite polite; but they just used to spit. You could get spat on four or five times in five minutes! They really didn't mean any harm: only it was just this quid tobacco (recounted in G.E. Evans 1975: 202).

In the C18 signs were known showing figures such as a Dutchman, a Scotsman, and a sailor, with the legend "I smokes, I snuffs, I chaws" or some elaboration of this (e.g. Fairholt 1859: 134-5; Laufer 1924b: 46): this indicates that the tradition of sailors chewing tobacco is long established and probably goes back to the earliest contacts with the New World. In addition, the forbidding of smoking on board ship because of fire risk and the breakability of pipes in any case no doubt encouraged chewing (cf MacInnes 1926: 49-50; Heimann 1960: 62). However, one variant on the "I smokes, I snuffs, I chaws" theme noted on an C18 tobacconist's card, while attributing smoking to (apparently) a Dutchman, attributes snuffing to a Frenchman and chewing to a Scot (Heal 1925: 60); while a tobacco label and a tobacconist's sign depicting the same motif attribute chewing to an Englishman (label described in Mackenzie 1957: 184; sign illustrated in Meadows 1957: 39 fig 3). The associations of snuffing with a Frenchman and smoking with a Dutchman are acceptable enough, but there is no other evidence to suggest that chewing tobacco was distinctive to either the Scots or the English, and it is probable that these latter depictions are a corruption of the original theme. Yet another version of this trinity, and one which probably identifies correctly the individual chewing the tobacco, is what Larwood and Hotten refer to as the "lares and penates of the tobacconist", the depictions of a Scot, a sailor, and a moor or Oriental representing respectively snuffing, chewing, and smoking (Larwood and Hotten 1866: 421). What may be the origin of the tripartite legends occurs in a depiction dated as early as 1617 of a London tobacconist's shop (MacInnes 1926: pl V) which is the title-page of Richard Brathwait's The Smoaking Age and shows three fashionably-dressed gentlemen seated and smoking, with various Latin tags and puns attached to them, and called respectively Captains Whiffe, Pipe, and Snuffe. From such a depiction it would be a short step to showing Captain Snuffe snuffing rather than smoking and thence to change one of the others to effect the third method of tobacco-taking. However, chewing tobacco has always remained rare in Britain.

(d) MEERSCHAUM PIPES

The earliest rival of the clay pipe was the meerschaum pipe. The origin of the use of this material in pipemaking is obscure, and the traditional story about this event appears to be fictitious. This story tells that ca.1720 a shoemaker in Budapest called Karl Kovács who made carvings and wooden pipes in his spare time was asked by a Count Andrassy to carve a pipe from a piece of meerschaum which the count had obtained from Turkey. Kovács did so, making in fact two and keeping one for himself, which he discovered became golden-brown where the cobbler's wax on his fingers had been absorbed by the meerschaum (variants of this story in Penn 1901: 152; A. Dunhill 1924: 234-5; and Weber 1962: 23-4 - the shoemaker's name appears in various forms, e.g. Karol Kowates). Penn and (possibly following him) Weber claim that the original meerschaum pipe was preserved - Penn says in the Pesth (Pest) Museum, Weber in the National Museum of Hungary, Budapest - but this is denied by the latter, which also notes that the Turks had introduced these pipes by the C17 (Magyar Nemzeti Múzeum [National Museum of Hungary] in litt. 11 December 1967). It should be noted that this story does not appear in Fairholt, and Fairholt was probably the most diligent and critical writer on his subject in the C19 - this may indicate the story is a late invention.

Hendrickx (1963: 159-60) dismisses the Kovács story, and also one about a Hungarian Andrassy who found the raw material when digging (this tale is not known to this writer but sounds like a garbled version of the Count Andrassy involvement in the Kovács story) but notes a bizarre account (perhaps quoting from Adolphe Bitard's Les arts et métiers illustrés of ca.1885, vol I (pp365-6) where it occurs) involving the origin of the name Meerschaum. This story, claimed according to Hendrickx by some etymologists, is that a Frenchman, Kummer, first made pipes of the material and that from this the French term for the material, *écume de mer* (literally, "sea-foam", for which *Meerschaum* is the German translation) was derived. Herment (1952: 42, 1965 ed) notes this explanation is still current, but correctly observes it is erroneous. In fact, as stated above, the term *écume de mer* is a translation of the German *Meerschaum*, and that term in turn is a translation of the Persian *kef-i-darya*, sea-foam (so *OED*). Bastien (1973: 2nd chapt) cites, though he does not give the title of, a work "*consacrée aux pipes en écume*" by a Eugène Vivier, "*instrumentiste réputé du siècle dernier, humoriste, fin lettré, grand fumeur de pipe*", which asserted that while Kummer had indeed made pipes of "*une certaine matière*" it had been erroneously supposed that he had used a play of words on his name to make it appear his pipes were of meerschaum. Unfortunately, who Kummer was, where he worked, and what the "certain material" was with which he made pipes is not stated. The only hint to the last point is that it was a less valuable material than meerschaum; one suspects it may simply have been superior-quality clay.

Yet another story, told this writer during his visit to the pipe-collection of Douwe Egberts, the Utrecht tobacco, tea, and coffee firm, in April 1969, is that on their retreat from the siege of Vienna in 1683 the Turks left behind in their camp quantities of meerschaum which were used to start a meerschaum pipe industry in Vienna. In this version, the story seems improbable but it does involve a date more in keeping with the evidence of the National Museum of Hungary; however, Savary des Bruslons in the 1759-65 edition of his *Dictionnaire universel*..., where the entry on pipes at any rate is still probably basically early C18 in date, describes the Turks as smoking pipes with three- or four-ft long wooden or reed stems and an earthenware bowl (Savary des Bruslons 1759-65 ed: IV, col. 200), and makes no mention of meerschaum (the same description of Turkish pipes occurs in the *Dictionnaire domestique portatif*,... (Roux *et al* 1762-64: II, 357), where the entry is almost wholly a slightly shortened version of Savary des Bruslons's account[16]). Bastien (1973: 2nd chapt), who is a very unreliable source (cf pp243-4), claims the meerschaum pipe originated in Austria in the C18.

According to Hendrickx (1963: 160) one Cristoffel Dreisz from Ruhla succeeded in 1770 in using the meerschaum chips left over from carving meerschaum pipes to produce imitation meerschaum pipes. (Hendrickx is not using Bitard here, for that work (n.d.: I, 368), citing "Beckmann" as his source - a work this writer has been unable to trace - indicated it was ca.1750 that the process was invented, at Ruhla, though not ascribed to any particular person.)

As meerschaum could be beautifully carved and coloured, pipes made from this material naturally became a socially-respectable means of smoking; the use of amber stems enhanced their appearance and also their price. However, while they may have begun to displace the long Alderman clay pipes which by the end of the C18 were the mark of a gentleman - as opposed to the short-stemmed cutties used by the lower classes (e.g. Fresco-Corbu 1964: 1286, fig 2) - it is difficult to believe that these aristocratic pipes caused any major drop in the production of clay pipes. According to one source (Anonymous 1856a: 94) meerschaum pipes first appeared in Britain at the end of the Napoleonic Wars, as did porcelain and "carved" (elaborately moulded clay?) pipes, "in the hands and moustached mouths of the allies who came over here in 1814, and who made them familiar with the populace by their daily and nightly exhibition in the streets of London". The same observer notes that by 1856 the meerschaum was on the decline, the cutty having become all the rage both at home and abroad (*loc. cit.*).

The London pipe firm of Inderwick, founded in 1797, claim they introduced the meerschaum pipe into Britain ca.1799, and say that with the brier pipe appearing ca.1870 the meerschaum declined in popularity (Inderwick and Co Ltd *in litt.* 24 February 1969). According to Weber (1962: 24), meerschaums became less expensive during the second half of the C19, and Austria turned out great numbers; another source (*Enc. Brit.* 9th ed 1875-89: XIX, 111-2) says Ruhla in Thuringia was the centre of the meerschaum industry, turning out annually in the 1870s 540,000 genuine and 5,400,000 artificial meerschaums (cf Hendrickx's remark above). Bitard, writing ca. 1885 (n.d.: I, 368) noted that the chief centres for producing artificial meerschaums were Ruhla, Nuremberg (Nürnberg) in Bavaria, and Lemgo in Westphalia. Bitard claimed that until 1850, when the first French factory opened in Paris, Austria had a monopoly on genuine meerschaums.

A meerschaum effigy bowl, described as having "what appeared to be the head of Zeus adorning it", has been found on the site of the chief factor's house during recent excavations at Fort Pelly I, Saskatchewan, Canada, a Hudson's Bay Company trading-post occupied 1824-56 (Christensen 1973: 59); meerschaum pipes appear in the Hudson's Bay Company list of goods for its North American trading-posts in 1862 when they were supplied by a Ciphraim Levin (Krause 1969-70), probably of London. The San Francisco paper the *Daily Alta California* carried an advertisement in its 1 July and subsequent issues for "Warranted Genuine Meerschaum Pipes, the largest Stock in California for sale low by Adolph Sutro & Co., 116 Montgomery St. Bet. w Sac. & California, San Francisco." (I owe this reference to my former colleague, J.P. Wilson, *in litt.* 12 December 1975).

According to Fresco-Corbu (1960: 1101), the much less fragile brier pipe began to displace the meerschaum from the 1860s onwards and by WW I meerschaum pipes had largely died out. In 1954, however, meerschaum deposits were located in Tanganyika (Tanzania), and from 1956, when production was 1,000 pipes, production had risen to over 100,000 annually by the end of the 1960s (Graves 1969: 71-2).

(e) CIGARS

The cigar was also used in the New World before the arrival of Europeans. Because it was the method of smoking tobacco in the areas settled by the Spaniards it was they who introduced the habit into Europe in the first half of the C16. Indeed pipe-smoking in Spain must have been extremely rare to judge by there being only 100 gross pipes exported from London to Spain between Michaelmas and Christmas 1698 compared to 41,000 gross to France, itself not a major consumer, for the same period (Oswald 1960a: 48, London is the port meant, cf Oswald 1959a: 59-60; cf Fairholt 1859: 217 and Laufer 1924b: 47). Despite some implied and occasionally explicit references to cigars in England prior to 1600 (see Section V above, also West (ed) 1953: 63), some evidence that they were (probably very occasionally) known in the C18 in England (West (ed) *loc. cit.*), and a reference to their being sold in

The Netherlands in 1667 (Brongers 1964b: 218-19), cigars do not appear to have spread beyond Spain to any extent for over two centuries, and when they did it appears to have been through American sailors, who brought them to Rome where they were being made from 1779 (Ortiz 1940: 243, 1947 ed), and Hamburg. Cigars were being manufactured in a small way at Hamburg from ca.1788, spreading their use in Germany (Fairholt 1859: 219; Laufer 1924b: 46; Enc. Brit. 1966 ed: vol 5, 767). Cigars were appearing in The Netherlands at the end of the C18 and became popular during the first half of the C19; an 1809 reference describes cigar-smoking as a Latin American custom, suggesting the Dutch may have adopted the habit from there rather than North America or the early European centres noted above. The first Dutch cigar-factory was opened in 1826 (Brongers 1964b: 219-20; also in Anonymous 1951: 113).

In the English American colonies, Connecticut and Massachusetts passed legislation in the first half of the C17 forbidding the consumption of tobacco grown in other colonies, which led to relatively coarse local tobacco being used. It also produced the cigar early in Connecticut as Indians there, in addition to smoking pipes, made crude cigars (Heimann 1960: 80). In 1762 General Israel Putnam, later to fight the British at Bunker Hill, returned to Connecticut after serving with the British forces which had captured Cuba, bringing with him three donkey-loads of Havana cigars, and this appears to have revived or increased local consumption of cigars and the manufacture of cigars from local leaf (Heimann 1960: 86-7). (The Enc. Brit. 1960 ed: vol 5, 702-3 is possibly referring to this when it says that cigars appeared in the later 1700s as a result of Spanish influence, though it claims they were made from West Indies tobacco and not from American-grown tobacco.) Cigars were being used by the Pennsylvania Deutsch by 1785 and the name stogy, first recorded in the 1890s for cigars (OED vol X, 1000 and DAE vols I, 586 and IV, 2240) but doubtless in use long before that, derives from the Connestoga waggon used in Pennsylvania from the second half of the C18 as a customary means of transport (Enc. Brit. 1960 ed: vol 5, 703; Heimann 1960: 87). The expensive Beaver Club - founded in 1785 by employees of the Hudson's Bay Company who had wintered in Canada's north-west Arctic - held fortnightly winter meetings in Montreal, and cigars are noted in the bill which has survived for one such party in September 1808 (MacKay 1936: 118-9, 1966 ed).

The popularity of the cigar in the United States appears to have risen throughout the C19 - the Enc. Brit. 1966 ed: vol 5, 766 says that only after the American Civil War, 1861-65, did cigars become cheap enough for widespread use; but Heimann believes the change was simply one of taste. There was the Spanish influence in the south and west; there was also the New England, specifically Boston, relative sophistication which made the cigar socially respectable and an advance on chewing-tobacco. Cultured surroundings became less and less suitable for chewing and spitting, though it was not until the end of WW I that chewing lost its place as the most common method of taking tobacco in the United States to the cigar. Within a few years both were to be completely outstripped by the cigarette. However, an 1876 cartoon showing various people representing their countries and taking tobacco in the manner alleged to be characteristic of their country shows Uncle Sam with a cigar (and Queen Victoria (!) with a cigarette), indicating that by the time the American image was being changed (Heimann 1960: 4th chapt and chart on pp224-5). According to Lewine (1970: 12-13, 14) cigars in the United States first became common after the War of 1812 and in the 1820s in New England, when ca.20 million cigars were being produced. The Mexican war of 1848 popularized cigars and cigarillos but it was not until the Civil War in the 1860s that the nation became cigar-conscious, helped particularly by General Grant. By 1880 ca.2,400,000,000 cigars were being sold annually. Maximum cigar-consumption in the United States - 86 per capita - was reached in 1907 (Heimann 1960: 216, 217), a level two-and-a-half times the current figure (see p.61 below). The Hudson's Bay Company records of goods shipped annually to its North American trading-posts suggest that in Canada too cigars became popular only in the second half of the C19, for they do not appear to mention cigars before 1847, and cheroots do not appear before 1858 (Krause 1969-70: passim).

It is generally held (e.g. Anonymous n.d.[1]: 6th page; A. Deane 1914: 9; Laufer 1924b: 46-7) that cigars were first introduced into Britain and France by veterans of the Penninsular War, 1807-14, against Napoleon. However, the records of Fribourg and Treyer referred to earlier first mention cigars - as "Segars" or "Havannah Segars" - before 1800 (G. Evans 1921: 34-5), which suggests Cuban, or at least allegedly Cuban, imports were known in Britain before the Peninsular War. Cheroots occur in an entry of 1801 (G. Evans 1921: 25). (Mackenzie (1957: 204) cites Evans, but slightly inaccurately; elsewhere (see 5: I) he also misquotes Evans.) According to Laufer (1924b: 47) the importation of cigars was at first prohibited, but with the end of the Napoleonic Wars in 1815 cigars were admitted at a duty of 18s a lb (cf Fairholt 1859: 219). In 1823, the year Byron wrote some verse eulogizing the cigar (Laufer 1924b: 47), only 26 lb of manufactured cigars were imported, but a reduction in duty resulted in 15,380 lb being imported in 1824. In 1825 the amount was down to 9,569 lb but thereafter it steadily increased so that in 1830 the amount imported was 253,882 lb (Fairholt 1859: 220). According to Fairholt (loc. cit.) duty was reduced to 9s a lb in 1830; Corti (1930: 222, 1931 ed) gives the date as 1829.

(The cheroot is a Far Eastern adaptation of the cigar, and is known as early as the second half of the C17 (OED vol II,323); Prebble (1968: 313) notes "cigars" on board a ship anchored off Edinburgh in 1704 which had just returned from the Ganges delta. The cheroot differs from the cigar in that it is always cut flat at both ends, and is nowadays made by mechanically rolling tobacco on to a wire (Fairholt 1859: 218; Penn 1901: 189; A.H. Dunhill 1954: 149, 1961 ed). The manufacture of cigars is described in A.H. Dunhill 1954: 98-101, 1961 ed; also in Anonymous n.d.[19] and n.d.[23]. An interesting detailed account of cigar-manufacture in Lincolnshire ca.1900 is given in N.R. Wright 1970: 2-5.)

Unfortunately, as is discussed in more detail in Section VIII immediately following, there is some confusion as regards evidence for tobacco-consumption at this period. However, there seems a consensus among the authorities that consumption in England did decline in the 1810s but was recovering before 1830; certainly, an 1831 source quoted by Laufer (1924b: 47) notes that "the taste for smoking has revived...but instead of the sober sedentary pipe, the ambulatory cigar is chiefly used". As this quotation indicates, cigars had become common by 1831, but they must have been rapidly gaining in popularity even before 1825, for two cartoons of that date (illustrated in Corti 1930: figs 59 and 61, 1931 ed) suggest cigar-smoking was all the rage among all social classes. Certainly Dickens in The Pickwick Papers, published in 1836, indicates that cigar-smoking was very far from being confined to the respectable classes (e.g. in Mackenzie 1957: 233). A French cartoon, displayed in the Musée du Tabac, Bergerac, and very similar to those illustrated by Corti, shows not only men and children smoking but women as well; it is dated 1842 which perhaps suggests that the popularity of cigars came a little later in France than in England. According to Lotte (1963: 38) the French Régie (state monopoly) did not begin to produce cigars until 1832. Manuscript records of the Gouda pipemakers' guild in The Netherlands unearthed by this writer record in 1826 that cigars had been "in general use for a long time", and an 1809 reference (Brongers 1964b: 220) indicates they were becoming popular by that date, showing they had become common there earlier than in Britain. With the popularity of cigars came the popularity, at least with the upper classes, of meerschaum and amber cigar-holders.

However, as has been noted earlier when dealing with the early spread of pipe-smoking, and as will be noted when dealing with cigarettes, contemporary comments on the prevalence of a new social phenomenon can be extremely misleading, and it is not necessary to suppose that these cartoons imply chain cigar-smoking on a national scale at the dates indicated. Further, smoking of any sort in public, whether indoors or in the open, was taboo in respectable society in Britain until well towards the end of the C19 (Penn 1901: passim, e.g. pp86-97; Apperson 1914; chapts IX-XII passim, e.g. pp153, 161-2; Scott and Scott 1966: 139-40; cf the Dickens characters Tupman and Snodgrass smoking in a public-house but not in the street, quoted in Mackenzie 1957: 233). According to the Scotts (1966: 139), smoking was not permitted in London clubs until White's, "bowing to the demands of the younger members", gave way in 1845. Although smoking does not appear to have been completely prohibited in the earliest days of railway travel, it was not until 1846 that the first smoking-saloon was introduced - by the Eastern Counties Railway - and only in 1868 that the provision of smoking-carriages on all trains was made compulsory (C.E. Lee 1946: 35-6).[17] Because of this ostracism of smoking, Cigar Divans - places where a gentleman could go to smoke in socially-acceptable surroundings - had been established by 1830: in 1837, when Victoria became queen, there were about a dozen Cigar Divans in London, and at least one was still in existence when she died in 1901 (Scott and Scott loc. cit.). (One source (West (ed) 1953: 33) claims that the term "dive" for a place of low repute is a contraction of "divan" used in this sense; the OED, however, does not mention this, merely noting this use of dive to be American and to first appear in print in 1882, with the implication that their being of "low" repute and frequently in cellars and the like is the origin of the term.) The earlier editions of A Dictionary of Arts, Manufactures, and Mines... by Andrew Ure, a renowned chemist and medical doctor, fell so far from the impartiality presumably striven for by such magisterial compendia as to introduce the section on tobacco-pipe manufacture in the following terms:

> Some seek in the inhalation of tobacco-smoke a pleasurable narcotism; others imagine it to be beneficial to their health; but, in general, smoking is merely a dreamy resource against ennui, which ere long becomes an indispensable stimulus. The filthiness of the habit, this offensive odour which persons under its influence emit from their mouths and clothes, the stupor it too often occasions, as well as the sallow complexion, black or carious teeth, and impaired digestion, all prove the great consumption of tobacco to be akin in evil influence upon mankind to the use of ardent spirits (Ure 1848 ed: 1262 - this was the third edition of the encyclopaedia, the first edition of which appeared in 1839; the fifth, which appeared in 1860 and was edited by a Robert Hunt, had these comments removed from the relevant section in vol III, 909-11).[18]

Smoking was among the many amusements frowned upon by evangelicals in Victorian times. Sir James Stephen (1789-1859), an evangelical Churchman (and grandfather of Virginia Woolf[19]), is recorded by his son Sir Leslie Stephen as having "once smoked a cigar, and found it so delicious that he never smoked again" (quoted in Inglis 1963: 76). Although a biblical defence of at any rate cigarette smoking has been noted by Matrix (cited in Gardner 1975: 180) in Genesis xxiv, 64 (Authorized Version translation), the Salvation Army believed that smoking, like drinking, encouraged indulgence, and smoking was frequently mentioned by converts in accounts of their Godless lives before conversion. Salvation Army leaders were profoundly shocked when the famous Baptist preacher, Charles Spurgeon, arrived at one of his meetings smoking a cigar and declaring that he smoked to the honour and glory of God (Inglis 1963: 185); and Thomas Cook, who founded Cooks the travel agency and was himself a Baptist lay-preacher, denounced "the use of tobacco, snuff, cigars and opium, with all other intoxicating agents - solid, liquid, or fluid [gaseous?]" in his The Anti-Smoker and Progressive Temperance Reformer, a monthly which he founded and produced between May 1842 and December 1843 (Pudney 1953: 65). L.B. Coles, a Massachusetts doctor writing in the mid-C19 in typical mid-C19 prose, fulminated at extended length about indulgence in tobacco, claiming amongst other religious observations that "tobacco and the Holy Ghost can no more dwell in the same person, than the Holy Ghost and alcohol" (L.B. Coles 1851: 99); and repeatedly maintained it was even worse, because of the insidiousness of its effects, than alcohol. Dire medical stories and impassioned religious appeals abound, and other stimulants lumped together with tobacco and alcohol and condemned are pepper, mustard, tea, and coffee (1851: 38).

One source in 1838 (a newspaper quoted in Hermessen 1926: 326) says that by that time, only seven years after a reference to smoking having revived in the form of cigars (see above), there was in England a swing away from the novelty of cigars, and that the short clay pipe was now fashionable. Cook, in an account in 1843 of his converting two probably illegal smokers in a railway carriage (smoking on trains at that time being largely forbidden - as noted above, the first railway-line to introduce smoking-carriages did so only in 1846), notes that one smoked a cigar and had a snuff box and the other smoked "a short black pipe" (Pudney 1953: 66). In 1852 another writer (Lamb 1852: 31) noted that "At the present time use of Clay Pipes is very general among the better class of smoker, and on this account the finish of Pipes is more attended to". The popularity of the short clay pipe is also noted in 1856 (Anonymous 1856a: 94) when the use of cutties is called a mania, though the context here is the decline in the use of meerschaum pipes. Mayhew, the observer of the London poor, noted that by about the middle of the century the street cigar-vendors, common during the previous 20 and more years, had largely disappeared (1861-62: I, 441; 1968 ed).

According to Fairholt (1859: 220; cf Apperson 1914: 166), at his time more than half the tobacco smoked in the large towns was in the form of cigars; and G. Evans (1921: 35) notes cigar sales at the exclusive tobacconists Fribourg and Treyer increase considerably after 1850. Fresco-Corbu (1960: 1100) unfortunately misquotes Fairholt - without mentioning his source - saying that half the tobacco consumed in the country as a whole was in the form of cigars. This is misleading, for though Fairholt refers to a steady increase in the popularity of cigars from the 1820s, the remark implies clay pipe smoking still continued or had revived outside the larger towns, for the alternative to the cigar there could not have been the cigarette or brier pipe (Sub-sections (f) and (h) below) this early. This interpretation is reinforced by Mayhew's observation noted above, for the street cigar-sellers would not have been likely to have sold to the fashionable classes: the latter would buy their cigars at suitably expensive stores, and those who would have bought from street vendors would have been the lower classes. Thus the decline in cigar sales by those vendors is likely to have represented a decline in cigar-smoking among the lower classes, who presumably returned to using clay pipes.

Unfortunately, it is not until 1931 that there is a full breakdown of figures for tobacco-consumption in Britain. In 1928, which is the earliest year for which cigar sale figures are available, only 1.4 million lb of tobacco were cigars, out of a total for the year of 152.7 million lb (Todd (ed) 1957: table 1.1, 1966 ed). One source (Enc. Brit. 1966 ed: vol 5, 769) says that in 1900 four-fifths of the tobacco consumed (by weight presumably) was pipe-tobacco, and one-eighth cigarettes. Another source (A.H. Dunhill 1954: 22, 1961 ed) says that by 1908 one-eighth of the tobacco smoked in Britain was in the form of cigarettes, the remainder being taken in the form of pipe-tobacco or cigars. Neither of these works can be cited without some reservations, and the origins for these figures are not given. The one-eighth figure for cigarettes in 1900 (though not 1908) agrees with that given by the Tobacco Research Council (Todd (ed) 1957: table 2, 1966 ed) but no figures specifically for pipe-tobacco are available before 1931, consumption being divided before that date into "cigarettes", "tobacco", "cigars", and "snuff". Before 1920 consumption was divided only into "cigarettes" and "tobacco, cigars and snuff", the figures for 1900 being respectively 11.3 and 80.4 million lb. The Encyclopaedia Britannica figures indicate 80% of tobacco consumed by 1900 was pipe-tobacco and 12% cigarette, which leaves only 8% for cigars, snuff, and chewing-tobacco. If these figures are accurate they indicate a dramatic decline in the popularity of cigars during the second half of the C19. Certainly, a government committee could remark in the 1920s that "a generation has in fact grown up which, taken as a whole, regards cigars as a very occasional smoke" (quoted in Alford 1973: 364, citing R. Stone The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom 1920-1930, 1954). However, a man born in Suffolk in 1888 recalled that early this century "You could get a sure-shot cigar for tuppence"; sometimes, he noted, a cigar was stuck in the band of the straight-brimmed bowler-hat that was part of the ordinary worker's Sunday dress, along with the peacock's feather that was always in the band, though more often a clay pipe was used instead (G.E. Evans 1960: 81-2, 1967 ed). Another Suffolk man, born in 1890, recalled cigars being a penny each (and tobacco 3d an ounce) and had a photograph of the staff of the Bell Hotel at Saxmundham taken at the beginning of this century in which six of the seven men - including the button-boy, who was probably only in his early teens - are shown with cigars (G.E. Evans 1975: 131, pl 12). The photograph shows the staff in the studied nonchalance common in photographs of the time, and no doubt those photographed were posed at their best and the cigars may have been part of the pose, but nevertheless it seems clear that as late as the beginning of the C20 there were still cheap cigars and these were smoked by the working classes. Taking the Tobacco Research Council's figures for 1928 noted above, cigars accounted for less than 1% of the weight of tobacco consumed, which indicates that by that time cigars had indeed gone completely out of popular favour (cf Corti 1930: 265 n.1, 1931 ed), and the Encyclopaedia Britannica figures may thus be fairly accurate.[20]

In recent years cigars have regained popularity in Britain. The Tobacco Research Council's figures (Todd (ed) 1957: table 1, 1966 ed) indicate that after a very slow decline from 1.4 million lb of cigars sold in 1928 (the first year for which figures specifically for cigars are available) to 0.9-0.8 million lb in the earlier 1950s, the figure rose from 0.9 million lb in 1955 to 1.6 million in 1960 to 2.9 million in 1965, a rise which parallels the astronomic rise in filter-tipped cigarettes from the mid-1950s and like the latter is attributable to the belief that cigarettes more than other forms of tobacco, cause lung-cancer. One source (Anonymous 1973b: 7) puts current British consumption at 25 cigars per capita as compared to figures of 35 for the United States, 49 in Germany, 93 in The Netherlands, and 202 in Denmark, which last figure is at least partly explained by the fact that Danish women have traditionally smoked cigars.

One point worth noting, a propos of cigar-consumption in Britain in the C19, is that the firm of Wills, which had been founded in 1786 and had entered the cigarette business relatively soon after that form of smoking became popular, and were indeed to dominate it - thanks particularly to their Wild Woodbine brand and their exclusive use of the Bonsack cigarette-making machine (see sub-section immediately below) - until the later 1920s, did not make cigars until 1882. This was due to lack of profit in cigar-manufacture, for cigars were hand-made and the business in Britain run by small manufacturers, and a high proportion of the cigars consumed in Britain were imported - even at the end of the C19 over 50% were imported. Instead, Wills bought domestic or imported products and distributed them wholesale, those imported initially coming from Havana though in the 1870s American-made cigars mainly from New York began to be imported by the firm

(Alford 1973: 113, 131). (For points not specifically referenced see A. Deane 1914: 9; Laufer 1924b: 46-7; Corti 1930: 220-2, 1931 ed; Fresco-Corbu 1960: 1100; *Enc. Brit.* 1966 ed: vol 5, 766-7).

(f) CIGARETTES

The cigarette, in the sense of tobacco wrapped in paper or a similar substance, was likewise known in the New World in pre-Columbian times, and this idea too spread to Spain. According to Mackenzie (1957: 264), the smoking of *papeletes* - tobacco wrapped in paper - was sufficiently widespread in Spain by 1635 to be the subject of a clerical denunciation, and Mackenzie suggests the use of paper as a wrapper may have originated from the manufacture of a particularly fine paper in Barcelona and Valencia. According to another source (Heimann 1960: 203-4, used by the *Enc. Brit.* 1966 ed: vol 5, 767 and probably also Lewine 1970: 11), the wrapping of cigar-fragments in paper to make poor man's cigarettes called *papaletes* (note spelling difference) was known from the C17 in Seville but it was the end of the C18 before paper-wrapped tobacco became respectable; yet another source (Corti 1930: 252, 1931 ed), however, states the custom came from South America, especially Brazil, where the invention was known as a *papelito*, in the mid-C18 and at once became fashionable. Casanova was one of the earliest foreigners to record the smoking of cigarettes (known then as *cigaritos*) in Spain in his *Memoirs of the Spanish Years* (1768-69), and a Goya painting in 1777-78 shows a cigarette (Corti *loc. cit.*; Anonymous 1960: 86; Brongers 1964b: 228).

Cigarettes, like cigars, spread from Spain following the Napoleonic Wars. According to Mackenzie (1957: 265), Spanish supporting forces in Denmark in 1808 tore pieces of white paper from pocket-books and wrapped tobacco in it. The word is French, but the early history of the cigarette is confused. It is possible that after the Peninsular War, tobacco rolled in paper and called a *papelito* (cf above) was known in Britain, but if so it was very short-lived (Apperson 1914: 180-1; cf Mackenzie reference above to Denmark). Corti (*loc. cit.*) notes cigarettes were being smoked in France by 1844. Penn (1901: 202), Mackenzie (1957: 265 quoting W.W. Young's *The Story of the Cigarette* (1916)), and Heimann (1960: 204) say the French *Régie* began their manufacture in 1843; Lotte (1963: 60) says 1842. Another source (Anonymous n.d.[2]: 4th page) - of uncertain accuracy - says cigarettes were being smoked in France ca.1833. There are several references to cigarettes in France and Italy in the 1840s - 1842, 1843, 1846 - but these references indicate that cigarettes were not then familiar to Englishmen (Apperson 1914: 179, 217-8). Their main spread appears to have been eastwards along the Mediterranean from Iberia (cf Corti *loc. cit.*), reaching Italy and the Levant and from the latter being introduced to Russia by traders. They were also appearing in the Spanish-influenced SW United States in the C19 (Heimann 1960: 203).

If some of the stories particularizing the invention of the meerschaum and brier pipes (Sub-sections (d) and (h) above and below) are highly dubious, that particularizing the invention of the cigarette is wildly improbable; but its date and setting, as with those of the other stories, reflects something of the origin of the cigarette, in this case the eastern Mediterranean background referred to above. In 1832, the story goes, the

Egyptians were besieging the Turks in Acre, and an Egyptian gunner improved his rate of fire by rolling his powder in tubes. As a reward his commander sent the crew a gift of tobacco, and as a Turkish ball had smashed the only available pipe, the crew wrapped the tobacco in powder-paper (Humphrey 1968: 6, quoting Sold American (1954); the same story appears in Lewine 1970: 11).

The credit for the introduction of the cigarette into England has been given variously to Laurence Oliphant, man of letters and of fashion, apparently in the 1860s (so Apperson 1914: 180, 181); or to one Robert Peacock Gloag, a Scot who had been paymaster with the Turkish troops in the Crimean War, 1854-56, and who set up a factory at Walworth in south London in 1856 or 1857 (e.g. C. Brookes 1969; West (ed) 1953: 35; cf Mackenzie 1957: 266). Like the stories about the different people supposed to have introduced pipe-smoking into England, these two stories are not necessarily incompatible, for Oliphant may have been the Ralegh of the cigarette (cf Penn's remark below). However, recent research (C. Brookes 1969) shows the Gloag story as traditionally presented has at least some inaccuracies, for the first reference to his business does not appear until 1860 and his premises are successively at Deptford Lane, 40 Boyson Rd, and Boundary Rd, of which only the last two are in Walworth. Further, this area of Walworth was still undeveloped land in 1856, and Boyson Rd only appears on maps ca.1871. Nevertheless, an 1890 interview with Gloag (Anonymous 1890; quoted in part in Mackenzie 1957: 266) is probably accurate enough when it refers to him as "originating the cigarette trade in England". According to this account, Gloag commenced manufacturing cigarettes in 1854, the year he returned from the Crimea, but there is no indication this was in Walworth; indeed, Gloag's address is not given, and the only reference to Walworth is a comment that Mr Gloag, then 65, had "for many years" been a churchwarden at St Peter's, Walworth. As a business's first appearance in a trade directory need by no means be the date the business was actually founded, there seems no good reason not to accept 1854 as the date Gloag commenced cigarette-manufacturing, whether at Deptford Lane or at a still-earlier address. Penn does not mention Gloag but notes that cigarette-smoking was introduced by English officers returning from the Crimea where they had adopted it from the French and Turks - he refers to Oliphant, who had apparently stayed in Russia, Turkey, and Austria for many years, as the "first well-known person who smoked cigarettes publicly in London" (Penn 1901: 197). Penn also quotes (1901: 89, 197) an unnamed writer as saying in 1845 that "the cigarette is rarely had recourse to [in Britain] save by foreign visitors".

Fairholt in 1859 mentions cigarettes being smoked in Spain and South and Central America, but makes no reference to their use in Britain (1859: 214) and he is a careful writer; but they must have been known in Britain by that time and indeed for some time before the Crimean War, for in 1845 a London cigar-merchant and tobacconist, Joseph Baker, referred to them and also said the Spanish paper for making them could be obtained from most tobacconists, and two businesses are known to have been making cigarettes by 1851, Bacon Bros of Cambridge, who have a ledger entry for the sale of cigarettes in that year, and H. Simmonds of Picadilly, who were making them about that date if not a little earlier (C. Brookes 1969). Further, the records of the London tobacco firm of Fribourg and Treyer first note cigarettes in 1852 (G. Evans 1921: 37); and Mackenzie (1957: 275) notes that the firm of Lambert and Butler had cigarettes in their stock book "before 1856". Dickens mentions them in 1854, though Apperson (1914: 180) and - perhaps following him - Heimann (1960: 204) suggest Dickens may have meant small cigars. Dickens is known to have used the two terms interchangeably in 1846 (Apperson 1914: 217-9). The term "cigaret", in company with "cigar", is used, but not defined, in an 1849 romance (Mackenzie 1957: 269). It seems clear, therefore, that the introduction of the cigarette has almost as much uncertainty attached to it as has the introduction of tobacco and pipe-smoking, and it is an example of how events only 50 years before Penn and Apperson were writing - and indeed even now only a century and a quarter ago - can become confused and ill-recorded.

Gloag's first cigarettes copied the Russian ones he had seen during the Crimean War. They were wrapped in yellow tissue-paper and had cane mouthpieces. The tobacco was Latakia dust, loaded into the paper wrapper from a thin metal tube, the wrapper ends being turned in to prevent spilling. These cigarettes were made up in bundles of ten and retailed at 6d (Anonymous 1890) - the slide-and-shell package was introduced by the American tobacco-magnate, James Duke, who invented the idea in the late 1880s (West (ed) 1953: 36). In the late 1850s and the 1860s and 1870s, Greek, Polish, and Russian cigarette-makers arrived in London to set up business. One of these was a Greek from Odessa, Theodoridi, who began manufacturing cigarettes in 1857 with another man who had arrived at the same time, Marcovitch; in the early 1870s John Wood, who was then the largest British cigarette manufacturer and had taken over Theodoridi's business in 1865, claimed Theodoridi was the first cigarette-maker to arrive in England (C. Brookes 1969). Many exotic varieties were produced: perfumed cigarettes, coloured ones to match ladies' dresses (cocktail cigarettes are not new), tobacco-leaf wrapped cigarettes, and ones with mouthpieces of various materials (West (ed) 1953: 35-6). Gloag introduced the cardboard mouthpiece - which was at first filled with Havana tobacco - and in 1865 introduced leaf-wrapped cigarettes (Anonymous 1890). He continued to produce his original hard-tipped form of cigarette into the C20, bringing out a vulcanite-tipped leaf-wrapped cigarette in 1897 and a "patented novelty" cherry-wood tipped variety called Bedrock in 1905 (West (ed) 1953: 36). The books of Fribourg and Treyer record hardly any cigarettes sold until 1866, when Russian cigarettes, a large part mouthpiece and little tobacco, became popular (G. Evans 1921: 37-8 and Morton 1935: 182). According to Gloag, the first great boom in cigarettes occurred in 1873, when his firm introduced their "Don Alphonso Spanish Whiffs" which were sold in bundles of 25 for 1s; these proved so popular that sales soon exceeded 50,000 a week and frequently approached 100,000 (Anonymous 1890). (There are several early, straw-wrapped, cigarettes in the W.D. and H.O. Wills museum in Bristol.)

The London Post Office Directories do not mention cigarettes until 1870, and the following year W.D. and H.O. Wills of Bristol commenced cigarette manufacture, at their London branch, with their Bristol brand (not the same as the brand of that name introduced in 1955). Almost certainly in 1883 Wills began to use in Bristol the American Bonsack cigarette-making machine which had been patented two years previously (their Passing Clouds cigarettes first appeared in 1874, their The Three Castles in 1878, Gold Flake in 1883, Wild Woodbine in 1888, and Capstan in 1893). In the 1870s, therefore, the modern cigarette was just beginning to become popular; but it was not until 1888 that cigarette sales reached a significant level, 100,000 lb of cigarettes - still only 0.2% of the total United Kingdom tobacco-consumption by weight - being sold that year. By 1900, however, 11,300,000 lb of cigarettes representing 13.8% of total United Kingdom tobacco-consumption by weight, were sold, a rise in popularity in large measure due to Will's five-for-1d Woodbines (Till n.d.: 25, 28; West (ed) 1953: 36; Alford 1973: passim; Enc. Brit. 1966 ed: vol 5, 768). (Cigarette manufacture is described in A.H. Dunhill 1954: 37-45, 1961 ed, also in Anonymous n.d.[21]; N.R. Wright (1970: 4) describes the operation of an early C20 cigarette-making machine used by a Lincolnshire manufacturer.)

Corti (1930: 252-4, 1931 ed) says that the first true cigarette was manufactured in Austria in 1865, although ca.1850 a "paper cigar" was put out by the Austrian Régie. The former was called a double cigarette, was about three times as long as a normal modern cigarette, and had a mouthpiece at either end. It was cut in the middle to give two cigarettes. The following year, 16 million of these were sold in Austria, but they were soon supplanted by the single cigarette. By the late 1880s the latter were supplanting the cigar in Austria.

There was a cigarette-factory in Havana in 1853, and cigarettes are noted in New York in 1854, but they appear to have been virtually unknown in the northern United States before 1860. In that year the first machine for shredding or cutting tobacco appeared, but was little used. In 1865, the first year for which records were kept, ca.18-20 million cigarettes were produced. A crude machine for rolling cigarettes was exhibited in 1876, but the Bonsack machine of 1880 was the first practical mechanical cigarette-maker, producing nearly 100,000 a day. Girls hand-rolling cigarettes made, it was recorded in 1883, between 15 and 18 thousand a week. In 1880, over 500 million cigarettes were being produced annually in the United States (a little more than a fifth the total number of cigars produced); by 1885 this figure had doubled and by 1895 it had octupled. It was this period which saw the cigarette-card war among companies and the attempt by the American, James Duke, to obtain a world monopoly in cigarettes. However, cigar-smoking was also increasing rapidly from the time of the Civil War in the United States into the first decade of the C20, chewing-tobacco - which was by far the most common method of taking tobacco in the United States in the C19 - continued to be produced in ever-increasing amounts until ca.1900 (see p.74 above), and the use of smoking-tobacco was increasing into the second decade of the C20; and it was not until ca.1920 that cigarette consumption in pounds of tobacco per capita equalled that of other means of taking tobacco - smoking-tobacco, chewing-tobacco, and cigars - all three of which were running approximately equal by that date. By 1938, however, cigarettes were totalling half the tobacco consumed, and by 1950 three-quarters.

In Britain cigarettes accounted for only one-eighth by weight of the tobacco consumed in 1900, and did not exceed the 50,000 lb mark until 1888, despite the American cartoon of 1876 already noted (p.   above) as showing Queen Victoria with a cigarette. This merely proves that what strikes a commentator or cartoonist as being all the rage need only be the unusual, not the standard, a point which should be borne in mind when considering comments on early pipe-smoking in the late C16 and early C17. However, by 1919 the weight of cigarettes sold exceeded that of all other tobacco sold (compared to the United States where it was only about one-sixth of the total), and by 1950 it was four-fifths (based on Todd (ed) 1957: table 1.1, 1966 ed; Heimann 1960; 7th chapt; Bagnall 1965: chapts 2 and 3; Enc. Brit. 1966 ed: vol 5, 767-9; Lewine 1970: first two chapts).

Both in the United States and Britain, WW I and military tobacco rations stimulated the cigarette's popularity; but the outlook and social habits of these countries is also reflected, for the increased speed of modern civilization makes the small, handy, cheap, and quick cigarette increasingly practical and relegates the pipe and cigar to the study and fireside.

(g) PORCELAIN PIPES

Although Fresco-Corbu (1963: 424-5) maintains that it was only in the 1760s that this "new type [of pipe] of purely German manufacture" (as opposed to imported English and Dutch clay pipes and German imitations of the latter) was produced, with the Meissen porcelain factory records first noting them in 1765 and Meissen and the factory at Nymphenburg, a suburb of Munich, selling them in quantity by 1770 and the Fulda and Berlin factories producing them soon afterwards, there seems no doubt they were being produced very much earlier, indeed from the beginning of porcelain manufacture in Europe. True, hard-paste, porcelain was first successfully manufactured in Europe at Meissen 1708-09, and according to Honey (1934: 45, 1954 ed) among the first experimental pieces from the factory to be exhibited, at the Leipzig Easter Fair of 1710, was a pipe-bowl. E. Zimmermann's Meissner Porzellan of 1929 (cited in Brongers and Van der Poel 1970: 159) also says pipe-bowls were being produced as early as 1710; and other references clearly indicate their production during the first half of the C18 (Honey 1934: 113, 193-4 n.191; cf Brongers 1964b: 172). The claim of a Dr Johan Franz Jacob Vicarius that a manufactory of these bowls was established at Vienna in 1693 (noted in Bastien 1973: 2nd chapt) must certainly be wrong, for as noted above Meissen was the first European centre to produce porcelain and was doing so only from 1708-09 - Vienna was in fact the second European centre to produce porcelain, commencing in 1719 (Honey 1952: 647), but there appears to be no reference to any earlier production such as any soft-paste, imitation, porcelain (as noted when discussing the German pipe industry in 3: III below, one source (Cassidy 1895: 22) claims that 200 years previously - i.e. ca.1700 - a Dr Vikarius (sic) had "'invented' - accidentally - the jointed pipe-stem", presumably the idea of the stub-stemmed bowl with an attached stem of a different substance, but neither Cassidy nor Bastien cite their sources).[21]

In all probability the manufacture of porcelain pipe-bowls spread when the capture of Meissen during the Seven Years' War, 1756-63, resulted in the spread of porcelain manufacture in general to other parts of Germany (Hackenbroch 1954: 111-3). Porcelain pipe-bowls also appear to have been made in France in the C18 (Brongers 1964b: 172) and in the C19 (Anonymous 1856a: 93). The typical bowl form is an elongated version of the "capless acorn" form of Dutch bowl which Friederich (1964d: 4 figs btm rt) dates from

1690 and which certainly occurs in archaeological contexts of the earlier C18 (e.g. I Walker 1971c: passim; FIG 158 btm centre). This form becomes the standard basic shape for Dutch pipes certainly until the later C19, and the porcelain version appears to have become equally standard in Germany.

Mayhew (1861-62: I, 440, 1968 ed) records porcelain pipe-bowls being sold in England in the middle of last century, when they were known as "china bowls" and were sold along with "comic head" pipes (the latter made of pipeclay with the bowls in the form of a head and face, often in caricature). As Mayhew records the "china bowls" were sold for 6d each while the "comic heads" were sold at 2d each it would seem the former were aimed at those with more expensive tastes, but it may be suspected that the clientele of the street-sellers Mayhew is recording, as with the cigar-vendors noted earlier, were predominantly of the lower classes. (According to Mayhew, the "china bowls" were of "white stone china", which indicates they were of one of the porcellaneous-glazed C19 imitations of porcelain or "china"; this reinforces the impression they would have been for predominantly lower-class use and were probably cheap.)

An observer of the same period (Anonymous 1856a: 94) says that porcelain pipes came into England in 1814, at the end of the Napoleonic Wars. Those made by English potters in imitation were found to give such an intolerably hot smoke, this source continues, that they could not be used, and porcelain pipes were thereafter imported. Being of porcelain, the bowls were non-absorbent, which made for a hot and strong smoke; but the reason for the intolerably hot smoke given by English porcelain bowls was probably because they would have been made of bone china, basically a hard-paste porcelain body with bone ash added and a characteristically English form of porcelain which had been used from 1749 and had been perfected by Josiah Spode II ca.1800, which has less heat conductivity than the true hard-paste porcelain which would have been the body used by German manufacturers (I owe this observation to Miss D. Griffiths, who is in charge of ceramics research with the Research Division of the National Historic Parks and Sites Branch, Department of Indian and Northern Affairs, Ottawa). A hot, strong smoke never appears to have been popular in Britain - Bastien's claim (1973: 3rd chapt) that in Britain polychrome porcelain pipe-bowls "were in great vogue, the country producing at that time [C19?] bowls of excellent quality" is certainly not correct - and a writer in 1876 (quoted in Fresco-Corbu 1963: 625 and Scott and Scott 1966: 35) gives his opinion in no uncertain fashion:

> The execrable china pipe is the mystery of the German. It has no absorption. It is a mere tobacco-still, condensing the fetid juices in its reservoir which must be frequently emptied and cleaned, or it is converted into a hubble-bubble of disgusting poison.

The selling of porcelain bowls by street-vendors is perhaps surprising in view of their relatively high cost, but it is possible that it may reflect a taste for a hot and strong smoke instead among the poor who could not afford much tobacco.

By the 1870s the porcelain bowl could be described as "the favourite of the German peasant" (Enc. Brit. 9th ed 1875-89: XIX, 112), suggesting perhaps that its use was predominantly lower-class, meerschaums (see above) presumably being the preferred pipe with upper classes. From 1860 porcelain bowls were being mass-produced from presses (Brongers and Van der Poel 1970: 154-5, 159), certainly suggesting cheapness; and in the 1870s the Ruhla area of Thuringia, which was the centre of the German meerschaum pipe industry - and to judge from figures, had a considerable percentage of the rest of the German pipemaking industry - was producing far more porcelain bowls than any other class of pipe, including meerschaums (*Enc. Brit.* 9th ed 1875-89: XIX, 111-2). Production figures were as follows:[22]

genuine meerschaums	540,000
artificial meerschaums	5,400,000
"wooden" bowls	4,800,000
porcelain bowls	9,600,000
"fine white clay or lava" bowls	2,700,000
"complete pipes of various materials"	15,000,000

Porcelain pipe-bowls have occasionally been recovered from North American sites, for example Fort Laramie, 1834-1938 (R.L. Wilson 1961: 125, 120 pl I, 1-2 and 1971: 8-9, 59 fig 2,A-B), and Fort Sanders, 1866-82 (R.L. Wilson 1971: 49, 80 fig 37), both in Wyoming; Fort Union III, New Mexico, 1863-91 (R.L. Wilson 1966: 40, 39 fig 6,G-H); and Bellevue Farm on San Juan Island, Washington state, which was established by the Hudson's Bay Company in 1853 to supply their fort at Victoria on Vancouver Island and abandoned by them in 1872 when the island was ceded to the United States, the farm being taken over by American settlers (Ferguson 1975b: 178).

(h) BRIER PIPES

The use of wood for pipes appears to have been known from early times. A wooden pipe dated 1620, originally with a silver mouthpiece, is in Birmingham City Museum and Art Gallery; whether genuinely of this date is uncertain. In 1692 wooden pipes, along with tin ones and conventional clay pipes were given to Indians (quoted in A. Deane 1914: 4). In the C18 Kovâcs, the alleged inventor of the meerschaum pipe, was said to make wooden pipes in one version of the story (A. Dunhill 1924: 234); and cherry-wood and willow amongst other types have been used (e.g. A. Dunhill 1924: 240-1; Weber 1962: 28; Brongers 1964b: 171-2). Wooden stems were known on clay pipes (Duhamel du Monceau 1771: 2) and became standard on German porcelain pipes (Weber 1962: 42; Brongers 1964b: 172). Tobias Smollett noted a French count smoking a wooden pipe in the south of France in 1765 (*N&Q* 25 April 1885: 323). According to one source, the Germans for a long time used pipes elaborately carved from the root of the dwarf-oak by the inhabitants of the Black Forest, but that the meerschaum had supplanted it (Anonymous 1856a: 93). (The brier-pipe firm of Dunhill, London, have among their extensive collection of antique pipes a very elaborate four-piece wooden pipe with carved faces of dogs and Amerindians which is alleged to be the pipe Ralegh smoked to the scaffold in 1618 (seen by this writer 1971; the pipe is illustrated in Herment 1952: pl 18, 1965 ed). The pipe was bought for 75 gns at an auction in 1911. It was said to have been given by Ralegh to Bishop Andrewes of Ely, subsequently of Winchester, whose family kept it for many years; the family of the owner who had auctioned it was supposed to have had it for some 200 years. A parchment relating to the pipe was said to have been lost some years before the auction (for this story see Apperson 1914: 22-3). In the opinion of this writer, however, the pipe is almost certainly of south German origin and C19 or later C18 in date - its shape, and the reservoir for tobacco juices, suggest this. Fresco-Corbu (1968: 846, 848) has independently agreed with this, noting very similar examples with spurious dates carved on them - one reading 1602 - and romantic legends attached. Fresco-Corbu suggests a Swiss or Tyrolean origin and a mid-C19 date. A number of similar pipes are in the Tabacologisch Museum of Niemeyer, the Dutch tobacco firm in Amsterdam.)

The origin of the brier pipe, like that of the meerschaum pipe and the cigarette, is given in an apocryphal story which nevertheless enshrines certain elements of truth. As with the story about the cigarette, it shows how easy it is for legend to appear in less than a century. After the death of Napoleon in 1821 there grew up a hero-worship cult, and from the 1830s and 40s it was popular to go on pilgrimages to his tomb at the Invalides and to Corsica. The story goes that one such pilgrim, a pipemaker, went to Corsica and there broke or lost his meerschaum pipe (in one recounting of the story the date for this event is given as 1825). He commissioned a Corsican peasant to carve him a pipe from a suitable wood, and this pipe, carved from the burl of the white or tree-heath or bruyère[23] (Erica arborea), was so successful that the pipemaker took home with him samples of the wood. These he sent to a factory in Saint-Claude, a French village in the Jura, which had been famous since medieval times for wood-carvings and where he was in the habit of obtaining wooden stems for his pipes, and there had the wood carved into bowls. This was in the early 1850s, and Saint-Claude thus became the centre of the brier pipe industry (A. Dunhill 1924: 242-6; Weber 1962: 28-9; Scott and Scott 1966: 39). A garbled version of this tale (Le Pailleur 1947: 666) makes the hero of the story Napoleon himself, breaking his pipe while on a visit to his native Corsica.

Although there appears to be no truth in this story, a date in the 1850s for the introduction of the brier pipe does appear to be correct. As the above story notes, Saint-Claude was famous for wood-carving, being renowned in the C17 for its snuffboxes, and about the beginning of the C18 was also making stems for clay and porcelain pipes made in other areas. Further, it seems likely that pipes of local wood (beech, maple, and later box) were being made towards the end of the C18 - the earliest known reference to wooden pipes made in Saint-Claude occurs in a catalogue of 1806, and following that date pipes became an increasingly important product of the Saint-Claude wood-carving industry (the information in this and the following paragraph comes from a mémoire done in 1960 for the Department of French at the University of Edinburgh on the Saint-Claude brier pipe industry by Miss S. Ripley; I am very grateful to her for supplying this information. Bastien (1973: 3rd chapt) follows Miss Ripley's account so exactly that one must assume he had access to her work, though he makes no mention of it).

The story associating the brier pipe with the Napoleon cult appears, significantly, to be unknown at Saint-Claude. Unfortunately, no direct evidence of a definite date survives, but there are three local stories - two of them in effect versions of the same one - and these, together with other historical evidence, unanimously point to a date in the mid-1850s. It has also been said that the superior qualities of the brier pipe were first brought to the public's attention at the Exposition Universelle of 1855 in Paris, but though Saint-Claude artisans won many prizes at the exhibition there appears to be no surviving detailed list of the items they displayed. The Chambre Syndicale of Saint-Claude accepts the date of 1856 and in 1956 celebrated the centenary of the brier pipe industry.

Two of the three traditional stories agree that at the Beaucaire Fair in 1854 a trader from the south of France met Saint-Claude wood-workers and persuaded them to experiment with the brier root for pipemaking on account of its hardness. (Beaucaire is near the mouth of the Rhône, between Avignon and Arles - the root would have had to come from the Mediterranean area, and this is certainly a more likely explanation than the story recounted by Dunhill above.) In one of these stories a specific Saint-Claude turner, one David, is mentioned; and in 1856 or 1857 it is known that this David and the Jeantet family went into business as apparently the first brier-pipemaking establishment in Saint-Claude. The third story was recorded in the notes of a person who had been apprenticed to the Maison Gay Ainé in Saint-Claude from 1857 to 1859, and this person is quite definite and detailed in his assertion that a merchant, again from the south, showed M Gay at the beginning of October 1858 a pipe made from this wood and that in the last week of that month the Gay firm were shipping finished pipes to Paris, northern France, and Belgium.

This last story notwithstanding, it appears that the brier pipe was being made prior to 1858 as there is other evidence to add to that noted above. One Saint-Claude firm, C.J. Vergnet Frères, advertising in the London Post Office Directory of 1895, stated they had been making brier pipes since 1857 (Fresco-Corbu 1968: 850); and Fresco-Corbu suggests there may have been other firms in business two or three years before this since Fairholt (1859: 198-9) noted that when he was writing, brier pipes were "now common in our shops, but expensive, the bowls costing about three shillings each".[24] Fribourg and Treyer first record "Briarwood Pipes" in their books in 1859 (G. Evans 1921: 37) - not, as Mackenzie (1957: 259) says, 1879. However, Nuremburg in Germany was another important centre producing brier pipes, at least by ca.1880 (Enc. Brit. 9th ed 1875-89: XIX, 112).

In 1892 there were 66 brier pipe factories in Saint-Claude employing 1,600 workers plus 500 women and 200 children, and by 1920 4,500 out of a population of 12,000 were working in the pipe industry (Ripley). When A. Dunhill was writing (ca.1924), 30 million pipes a year were being made, of which 90% were for export, the French then as now being a predominantly cigarette-smoking nation. Subsequently, however, Italy took over the production of cheap briers (Mackenzie 1957: 255), and by 1956 the number of people associated with the industry in Saint-Claude had dropped to 2,000 out of a population of 13,500 (Ripley).

The first maker to appear in England is said in one source (Anonymous 1966a) to have been a Frenchman who set up business in 1879, but the London Post Office Directory first mentions a brier pipemaker, Joseph Koppenhagen, in 1862. The firm of Loewe and Company Ltd advertise "a century of making the famous Loewe pipe" and claim to have been established in 1856, but inquiries to the firm have failed to ascertain the accuracy of these statements, or the origin of the firm - their name suggests a German or Swiss origin. However, the first-noted London firm, Joseph Koppenhagen, became Koppenhagen and Loewe in 1866 and Loewe some years later (Fresco-Corbu 1968: 850), which indicates Loewe was associated with the brier pipe business at least by the mid-1860s. (Catalogue 17 (1972) of the Brussels bookseller Le Grenier du Collectionneur lists (item 432) a brochure of the Loewe firm and refers to Loewe as a Frenchman who in 1854 became the first to introduce brier pipes into Britain.)

Kaywoodie Pipes Inc., the American tobacconists and pipemakers, use the slogan "world's finest since 1851" to describe their various tobacco products and specifically say "World's Finest Pipes Since 1851" (Anonymous n.d.[7]), but enquiries to the firm as to evidence for the type of pipe produced in 1851 brought no reply.

In 1878 the vulcanite mouthpiece was invented by an English firm, though it was the Germans who established a monopoly in supplying these parts until WW I (A. Dunhill 1924: 247).

Brier pipes have been recovered at Fort Berthold II, North Dakota, 1858-ca.1880, one apparently machine cut and originally fitted with a cap or cover (G.H. Smith 1972: 155-6, 152 fig 74,o); at Fort Vancouver, Washington state - with vulcanite stems - in a context of ca.1860 or later (Caywood 1955a: 59); at Fort Union III, New Mexico, 1867-91 (R.L. Wilson 1966: 40); at Fort Stevenson, North Dakota, 1867-94, where one had a "hard-rubber" stem (G.H. Smith 1960b: 226, pl 54,j); and at Fort Calgary, Alberta, Canada, apparently in the area of the original fort of 1875-82 (Anonymous 1970a: 3). A retired American Brevet Brigadier-General, describing in 1900 (in generalized and idealized fashion) American army life sometime in the period 1865 to ca.1900, claimed that

> Most of our officers on the frontier are habitual smokers, but very few smoke to excess. With many of them a brierwood pipe is used instead of a cigar, as it is easily carried on a march, is quite as good a smoke, and costs less, while the cigarette has comparatively little standing (Forsyth 1900: 114; I owe this reference to my former colleague, J.P. Wilson).

Brier pipes were certainly reaching the American West very shortly after their initial manufacture in Europe, for the Bertrand, which sank in the Missouri in Nebraska in 1865, was carrying briers as well as clays (Petsche 1974: 72; Hamilton and Hamilton 1972: 5). These briers are surprisingly modern in form, closely approximating the Large Full Bent of the present-day brier-pipe industry, which has a Billiard (also known as an Egg) bowl shape; the shape may in fact have been the European form from which the English Billiard and Apple shapes were adapted (I am very grateful to Alfred Dunhill Ltd of London in litt. 30 April 1974 and S.M. Frank and Co. Inc. of Yaphank, New York state, in litt. 25 April 1974 for a discussion on the Bertrand bowl shapes). Their stems are of wood; the bits appear to be an early version of the normal modern brier-pipe bit, similar to that known on French and German clay pipes (see p.176 below and FIG 117) (this description is based on a photograph in the files of the Interpretation Division, National Historic Parks and Sites Branch, Ottawa, showing five complete briers from the Bertrand). An inventory of merchandise for the Hudson's Bay Company's Elbow River post in Alberta dated 1 May 1878 notes "Briar root no. 2" pipes (Dempsey 1973: 46).

In addition to the references above, curved "hard-rubber" stems were found at Fort Berthold II, one attached to an octagonal bowl of unspecified material which had originally had a meerschaum or similar liner (G.H. Smith 1972: 156, 152 fig 74,n). A curved saddle-bit "hard rubber" stem designed to receive the stub stem of a bowl came from Kijik village in southern Alaska, which was occupied until the beginning of the C20 (VanStone and Townsend 1970: 129, 127 pl 23,9); a curved stem with a threaded end designed to screw into the stub stem of a bowl and apparently of bone was found at Fort Laramie, Wyoming, 1834-1938 (Beaubien 1951: 13); while two curved "hard-rubber" stems were found at the Custer Road Dump site associated with Fort Mackinac on Mackinac Island, Michigan, in the two earliest layers, dated to 1876-79 and 1879-80, and two straight bone stems with threaded ends occurred in the topmost layer, dated to 1893-95 (Brose 1967: 60, 61, 51 pl VI,I upper and lower and H, 69). At Fort Walsh, Saskatchewan, Canada, 1875-83, three short amber[25] stems, two at least designed to have the stub of a bowl screw into them, have been discovered (excavations conducted 1973 by the Research Division of the National Historic Parks and Sites Branch, Ottawa): the bone and "hard rubber" stems almost certainly belonged to brier pipes, the amber stems could have gone with either a brier or a meerschaum pipe - in either case these last suggest some rather expensive tastes.

As the C19 progresses it becomes more and more difficult to paint a broad picture of the methods of tobacco-taking because of its spread to countries which were developing different traditions and because of the increasing number of ways in which tobacco was being taken. In discussing clay pipes one now has to consider the complex ramifications resulting from trade to an increasing number of countries as well as the adverse impact on the industry of other methods of taking tobacco.

For example, as noted in Sub-section (e) above, cigar-smoking in the United States was increasing rapidly from the 1860s into the first decade of the C20, and according the Heimann (1960: 153-4, 160-1, 163-4, 193, 139-40, 236) pipe-smoking was a relatively minor method of taking tobacco in the United States in the C19 before the American Civil War, 1861-65, becoming important only in the last quarter of the century; but to judge by the number of clay pipe fragments found on most American archaeological sites of the mid- and later C19 pipe-smoking was commoner than one might suppose from Heimann's remarks. Further, the early arrival of briers in the United States - by 1865, as evidenced by the Bertrand cargo noted above - suggests pipe-smoking had a certain social standing, which in turn suggests Forsyth's comment that briers were commonly used by American army officers in the later C19 (above) is not inaccurate. In view of the lack of any major United States clay pipe industry (there are few statements on American clay pipe manufacture, but from the overwhelming number of foreign-made pipes found on C19 American sites excavated it is safe to assert this) it is not surprising that some British clay pipemakers, notably those in Glasgow (4: IV), were able to offset loss in home demand with increase in oversea demand. Archaeologically speaking, direct evidence for a change from clay pipes to briers would be rather difficult to discern, for clays are relatively cheap and expendable, which results in large numbers of fragments being found (cf p. 3 above), whereas briers are durable, more valuable and thus less commonly lost, and only rarely thrown away (one may also suspect that on an excavation remains of briers are less readily recognizable than are clay-pipe fragments (cf R.L. Wilson 1966: 40): however, as noted when discussing the Glasgow industry (p.344 below), there is evidence that the heyday of its export trade, at any rate to North America had passed before 1891; and it may also be noted that the Montreal clay pipe industry, which mushrooms in the third quarter of the C19 and is known from archaeological finds (4: V) to have exported to the United States, declines as rapidly in the last quarter of the century, and although the cigarette was certainly increasing in popularity at this time (see Sub-section (f) above) the decline of the Montreal industry and of Glasgow's North America trade may well be at least in part because of the impact of brier pipes on the market.

Other points which can be tied into the diverse aspects of C19 smoking habits will be noted as they arise in this study.

SECTION VIII:
TOBACCO CONSUMPTION

As already noted when discussing cigars in the previous section, there is unfortunately some confusion among various authorities on figures for tobacco consumption, particularly for the period from the late C18 into the earlier C19.

Clapham (1926: 246, 1939 ed) says that the amounts of tobacco imported and consumed in Britain at the end of the C18 and the beginning of the C19 fell, partly because of the wars of this period but also because the loss of the American colonies put out of business those who had hitherto had an interest in keeping the tax on tobacco at a reasonable level. This, together with the fact that tobacco was an obvious luxury, led to high taxation to assist in financing the wars. There was, he continues, an appreciable fall in tobacco consumption in England between 1811 and 1821, but by 1831 the figure had almost returned to the 1811 level; in Ireland, however, this fall was much more marked and in 1831 the figure there was still only two-thirds of that for 1811. Clapham gives the tax on tobacco in 1811 as a fraction over 2s2d per lb; for the period 1820-26 it was 4s, in 1826 it was reduced to 3s, and during the period 1827-31 it was 2s9d.

Rive, however, while agreeing with Clapham as to the most accurate tax figures for each year (that is, the rate at which the greater part of tobacco imported was taxed - for a more detailed statement of these figures see Alford 1973: 475 table IX), has consumption figures which are at variance with those of Clapham (Rive 1926: 72-3). Rive's per capita consumption figures for Great Britain suggest there was no real change, save for occasional fluctuations, during the period from the 1790s to the 1820s. As Rive notes (1926: 74), per capita consumption figures are official only from 1855, figures for earlier years (and also for the period of WW I) being estimates only; but in the later 1780s, when Rive's estimates begin, 0.7 lb per person per annum is his figure and from 1790 to 1825 the figure hovers on either side of 1.0 lb. Estimates for the United Kingdom are available from 1815: these figures for the period 1815-25 (at which latter date Rive's estimates for Great Britain alone stop) when compared with those for Great Britain are consistently lower by ca.0.2 lb - some 3 oz - which indicates that consumption in Ireland must have been very much lower at this time than in Britain.

According to Rive (1926: 73) per capita consumption in the United Kingdom between 1815 and 1841 remained at between 0.9 lb and 0.8 lb; but Deane (1965: 250) gives figures which show a decline of almost a quarter over this period, from 19 oz in 1811 to ca.14-1/2 oz in 1841. Alford in his recent study of the Wills tobacco firm and the United Kingdom tobacco-industry, feels that "Figures for *per capita* consumption in the nineteenth century are not considered to be very useful, since it is impossible to distribute changes in levels between individuals' consumption and alterations in the total number of smokers" (Alford 1973: 458): his index of tobacco-consumption for 1789-1900 shows a rapid rise in the earlier 1790s after which it fluctuates but with no long-term losses or gains, though with several sharp declines and rises - declines in 1796 and 1798, a rise in 1797 and another 1803-13, a decline in 1814 and a rise in 1815, a decline 1819-22 - until the 1830s, when the figures begin to climb, slowly and somewhat uncertainly at first but with increasing rapidity after the early 1840s (Alford 1973: 472 and 115).

These indices can be interpreted as broadly agreeing with the pattern of Rive's figures, including agreements on fluctuations, though Rive's figures present a curve of a very much lower profile. For example, Rive's per capita figures from 1815 are, as already noted, in the 0.8-0.9 lb range and they remain so - with the single exception of the year 1821, when the figure drops to 0.7 lb (cf Alford's decline of 1819-22 above) - until 1845, when 1.0 lb is reached for the first time; and it is only after 1852 that Rive's figures show a steady rise. One reason why Rive's figures appear insensitive, however, is his use of relatively gross fractions: 0.1 lb is 1.6 oz, a sizeable amount in this particular frame of reference and, as figures quoted below by Fairholt and Penn indicate, one much too large to catch any normal annual fluctuation. Clapham's decline of tobacco-consumption from 1811 and its revival by 1831 probably reflect the declines and rises noted above for this period by Alford; Deane's figures are probably an error caused by her taking Rive's or some equivalent figure for Great Britain in 1811 - Rive's figure of 1.2 lb for that year approximates her 19 oz - and comparing it to a figure for 1841 for the United Kingdom (cf remarks above), for which year Rive gives a figure of 0.8 lb, an amount a little less than Deane's ca.14-1/2 oz but comparable with Fairholt's 13.21 oz (see below).

As noted above, Fairholt (1859: 323, quoting the Journal of the Royal Statistical Society vol XVI) gives ten-yearly figures for tobacco-consumption in ounces for the years 1821-1851 and Penn (1901: 211) continues these figures to the end of the C19, and these figures seem to give a much more sensitive picture of the trend towards increasing consumption throughout the century than do Rive's, despite Alford's reservations on all per capita figures. From 11.71 oz per head in 1821 the figure slowly rose to 13.21 oz in 1841, and then with increasing rapidity to 16.87 oz to 1851, 25.00 oz in 1891, and 31.75 oz in 1900. (Fairholt says the figures are for "England", but probably the United Kingdom is meant.) A more detailed outline of this increase in tobacco-consumption is given in the following table (the Alford indices are based on 1870=100):

	Rive	Fairholt-Penn	Alford
1821	0.7 lb	11.71 oz	38
1831	0.8 lb	12.80 oz	47
1841	0.8 lb	13.21 oz	53
1851	1.0 lb	16.87 oz	67
1861	1.2 lb	18.88 oz	84
1871	1.4 lb	21.49 oz	103
1881	1.4 lb	22.60 oz	118
1891	1.6 lb	25.00 oz	145
1900	2.0 lb	31.75 oz	190

(Penn also (1901: 215-6) gives figures for tobacco-consumption in a number of European countries and in the United States for - apparently - 1891. The figure given for Britain, 1.34 lb per capita - differs somewhat from the figures noted above, but even with the above figures substituted no fewer than seven countries had a higher rate of consumption, The Netherlands leading with seven lb and the United States following with five. Austria, Denmark, Switzerland, Belgium, Germany, Norway, France, and Sweden - in descending order - had a per capita consumption of two lb or over. According to Penn (1901: 137) the reason for the high Dutch figure was that Dutch tobacco - much of it home-grown - was milder than, for example, American tobacco. According to Penn it would be "physically impossible" for a Dutchman to smoke the same amount of American tobacco as Dutch, though the figures given, being per capita, do not represent accurate consumption per smoker unless the proportion of smokers to the total population were similar in The Netherlands and the United States.

The tobacco-consumption figures for Britain clearly indicate that whatever happened to the clay pipe industry in the C19, it did not decline for lack of tobacco being smoked. The popularity of snuffing in the previous century, however, does appear to have brought down the per capita tobacco-consumption figures for that period. Assuming a population of 5,800,000 in 1700, Rive gives a figure of just under two lb a year, a figure which had been more than halved by the 1780s (Rive 1926: 63, 72). Penn (1901: 84-5) quotes a source for the first decade of the C18 giving a figure of over two lb. Snuff-taking involved the use of much less tobacco, and snuff-manufacture also utilized the plant stalk, to say nothing of more dubious material which was frequently added to make the snuff more pungent (see n.12 above). In modern times the best snuff is made from the whole leaf, but cheaper varieties are made chiefly from the stem (A.H. Dunhill 1954: 111, 1961 ed).

Unfortunately, as has been noted in preceding sections (pp33 and 43 above), there is a gap in the records of the amount of tobacco imported into England between 1640 and 1689 and also one in the records of the amount of tobacco exported by Virginia between 1641 and 1688. A comparison of both sets of figures for the years immediately preceding and following these dates, however, indicates that the amount of tobacco being handled had increased 11 to 14 times between ca.1640 and ca.1690. How much of this amount included tobacco for re-export is unfortunately unknown; by the period 1689-1709 three-fifths of the annual average of 28 million lb imported into England was so designated (Rive 1926: 61). Whether this increase in the amount of tobacco imported during the period ca.1640-ca.1690 was a fairly steady one cannot be found from figures, but there is some suggestion from clay pipes that it may not have been, or at any rate that there was a more rapid increase from ca.1660 onwards than had been the case prior to that date, for it is from this time that clay pipes begin to increase quite rapidly in size for the remainder of the century (cf FIGS 1-6). This possible correspondence between pipe-bowl size and availability of tobacco might be a worthwhile topic of research on its own; Atkinson (1965c: 87, rev ed 1969b; 1971: 181) has already suggested that the increase in the size of bowls towards the end of the C17 was because tobacco had become very much cheaper (cf figures for the cost of an oz of tobacco at various times in the C17 cited on p.33 above). Certainly the bowls produced by Bristol makers in the 1650s are little if any larger than Bristol pipes of the earlier C17 (cf Appendix IX passim). (Some work on bowl capacities was carried out by Miss E.A. Wylie of the Research Division of the National Historic Parks and Sites Branch in Ottawa in 1967 under the general supervision of this writer, but it has never been sufficiently refined to produce practical data and has never been continued). A quite different suggestion for the smallness of pipe bowls - and also for the length of their stems - has been proposed by Heimann (1960: 63-4), namely that the strength of the unrefined tobacco of the period prevented its use in larger amounts. So far as this writer is aware, no work has been done on the early cultivation, processing, and blending of tobacco, or on attempts to grow milder-smoking varieties and improve methods of curing the leaf; this should certainly provide a separate research project.

To judge from the rapid increase in tobacco imports during the C17, however, the amount consumed in pipe-smoking in England must have risen enormously, even allowing for a growing re-export trade in tobacco, and the ca.1700 per capita figures given above must be about the maximum - a figure of two lb was in fact not again reached until 1900. This gives additional support to the view that the beginning of the C18 was the heyday of the clay pipe (and thus probably of clay pipe manufacture) and that as the C18 progressed the pipe industry began to contract. In 3: I, other evidence for this is given - including a source quoted by Fairholt that Queen Anne's reign shows the height of pipe-smoking - and as discussed in Chapter 6, the Bristol industry was declining from ca.1740 onwards until the beginning of the C19. The Broseley industry also seems to decline greatly during the second half of the C18 (Oswald 1970b: 227). Even the Chester industry (4: III), said in the late 1700s to have produced the best pipes in Europe, had lost most of its trade by the beginning of the C19, and it is clear that the decline of the pipe industry at this time is countrywide (see pp260-1 below). The only centre unaffected appears to have been Liverpool, for reasons which will be discussed in 4: II.

The amount of tobacco an "average" smoker consumed in earlier times is unfortunately impossible to estimate. Sheppard (1902: 4-5, 1912 ed), quoting the household account book for 1709-14 of one Charles Warton of Beverley Parks, Yorkshire, notes that in one year Warton purchased 24-1/2 lb of tobacco. If Warton used all the tobacco himself then 24-1/2 lb averaged over a year would give a figure of slightly over one oz a day. Sheppard says there is evidence in the accounts that Warton was miserly and unsociable in character, and suggests he smoked all the tobacco himself, but the evidence of his purchases of pipes (dealt with in 6: I) suggests he must have entertained at times, and it is likely his average tobacco-consumption a day was a little under one oz.

There appear to be no accurate figures available for the quantity of tobacco a modern "average" pipe-smoker consumes. Pipe-smokers and tobacconists consulted give figures ranging from half an ounce daily to a little over one oz. The crucial factor is the price of tobacco and its relation to wages. Warton paid 1s8d for a lb of tobacco, a sum which would have been more than the daily wage of a labourer of the time. Today (post-November 1968) the price of tobacco varies very widely with its quality, but taking ca.7s9d as the cost per oz of a good but by no means exclusive pipe-tobacco, a lb would cost ca.£6 4s, a figure which in relation to today's wages is surprisingly compatible with Warton's figure compared to wages of his time. Warton's figures give the price of an oz of tobacco at ca.1d: no indication is given as to what quality of tobacco Warton smoked, but he did buy good-quality pipes as well as cheaper ones. Some support for the figure of about an oz a day tobacco consumption or possibly higher comes from a writer in 1703 who commented (quoted in Penn 1901: 84) that "in two miles' compass may be found a thousand families or persons in country villages that one with another do smoak, snuff or chaw the year round one penny a day, and most of these coal or lime men, firemen, etc.": as Warton's tobacco at this time was costing ca.1d an oz this observation, while not necessarily exact, suggests even the poorer classes could afford 1d a day for tobacco. At Warton's prices this would give a figure of approximately an oz a day; if, as is perhaps likely, they used cheaper tobacco than Warton did, this price might indicate an amount up to double that quantity. (The manufacture of modern pipe-tobaccos is described in A.H. Dunhill 1954: 45-52, 1961 ed; also in Anonymous n.d.[22].)

Regarding an average quantity of snuff, G. Evans (1921: 17) suggests that a half oz a day, for individual use, "would possibly be a very moderate allowance, and below average" - this presumably was for last century. Evans goes on to note the last snuff-taker of consequence purchasing from Fribourg and Treyer used ca.3 oz a day but says he "took snuff to excess and very frequently handed his snuff-box to friends". Somewhere between 1 oz and 1-1/2 oz, therefore, was probably an "average" daily consumption of snuff last century.

CHAPTER 2

MANUFACTURING PROCESSES

SECTION I:
METHODS USED IN NORTHERN FRANCE

The manufacture of clay pipes has attracted very much less attention in the literature than have the pipes themselves. Indeed, the only detailed account of pipe-manufacture appears to be the monograph *L'Art de faire les pipes à fumer le tabac*, written by H.-L. Duhamel du Monceau two centuries ago (Duhamel du Monceau 1771). This account, dealing with pipemaking in northern France and in The Netherlands, was comprehensively summarized by the Diderots in their *Encyclopédie*,..., where the majority of Duhamel du Monceau's illustrations were also reproduced (Diderot and Diderot 1751-72: IV, 375-8, plates in vol I *Supplément* pls 1-4 and vol VIII pl xviii); and the section on Dutch pipemaking was also summarized by M.G. Jars in his *Voyages métallurgiques*,... of 171, though with only four, and different, illustrations (Jars 1781: III, 369-72 and pl 13).

The manufacturing processes described by Duhamel du Monceau are set out in minute, if somewhat heavily-written, detail, and for the purpose of this study the accounts have been abridged and entirely reorganized (see Appendix III for an explanation of the use of foreign terminology in this and other sections of this chapter). At its simplest the process was as follows. The clay was first soaked in tubs of water to make it soft and malleable. It was left in this state for half a day only, during which time it was worked over with a *louchet*, a sharp-edged instrument like a small spade. The clay was then spread on, a table in a layer about six ins thick and puddled (that is, made impervious to water) by being beaten with an iron bar. The amount of time needed to effect this depended on the quality of the clay - the finer the clay, the longer the time, as the finer clay took longer to become pliant. Half a hogshead of very fine clay could take four hours' beating; the same amount of coarser clay, two hours. After this, the clay had become paste-like, and was ready to be worked.

However, at Dunkirk (*département* of Nord), the preparation was a good deal more complex in order to turn out pipes to rival those made by the Dutch. From the writer's own work on the English and Dutch pipes excavated at the C18 French fortress of Louisbourg, Nova Scotia, Canada, there can be no doubt that even the cheaper brands of Dutch pipes were superior in appearance to most English pipes (I. Walker 1967c: 187 fig 1; 1971c: *passim*). In 1696 a tax of 5s per gross of 144 (a gross in pipemaking varying at various times in the manufacturing process) was put on foreign pipes by the English government (7 and 8 Gul. III C.31, XLIX). This must have been aimed at Dutch pipes, and suggests they were feared competitors of the home-made variety. Houghton, writing in 1696 (1st page), notes the superiority of Dutch pipes. (In The Netherlands, or certainly at Gouda, the chief Dutch pipemaking centre, pipes were made in three classes - *slegte* (ordinary), *fijne* (fine), and *porceleyne* (porcelain). These represented three ascending qualities, and even the lowest, on Louisbourg and other evidence, was better than that of most English pipes. The "porcelain" quality was in fact that of a highly-polished pipe (Helbers and Goedewaagen 1942: *passim*), not made of porcelain, and not to be confused with the true porcelain pipes manufactured in Germany from the first half of the C18 onwards and based in shape on Dutch pipes.)

The pipe manufacturers in French Flanders and Artois (approximately the départements of Nord and Pas-de-Calais) mixed several of the local clays with the superior ones from Andenne (east of Namur in modern Belgium) and Autrache (now Hautrage, north of Mons and also in Belgium) as the duty imposed by the Austrians - most of the area then being part of the Austrian Netherlands - and the cost of transportation made it impossible for the French to produce pipes of Andenne and Hautrage clays at a price competitive with foreign-made pipes. The proportions of clays used varied with the place of manufacture and the type of pipe made, but at Dunkirk pipes imitating Dutch "fine" examples were made of two parts Andenne clay to one of English clay, while at Saint-Omer (Pas-de-Calais) they were made with equal parts of Hautrage and Desvres (Pas-de-Calais) clays, and at Valenciennes (Nord) with equal parts of Hautrage and Pau clays. (Pau has not been identified - no place of that name can be traced in NE France or in modern Belgium, though it is extremely unlikely that it can be any of the three known Paus elsewhere in France as they are all in the southern or central parts of the country.)

Essentially, pipemakers tried to use local clays, or failing that, those nearest (Duhamel du Monceau 1771: 5-7). At Forges-les-Eaux in the Pays de Bray NE of Rouen (Seine-Maritime), clays from Forges-les-Eaux itself and elsewhere in the Bray region (e.g. la Bellière ca.2 miles away, Gournay-en-Bray ca.12 miles away) were used. An observer of the Dieppe industry in 1789 (quoted in Bastien 1973: 2nd chapt) noted that the clay used there came from the Neufchâtel-en-Bray area, ca.20 miles SE of Dieppe and ca.10 miles NW of Forges-les-Eaux. At Rouen pipemakers used clays from Saint-Aubin, some 6 miles up the Seine from Rouen, and nearby Elbeuf.[1] The Dutch used clays from the Liège[2] area - which must mean Andenne - and the Cologne region. Brongniart (1854 ed: II, 180) says when summarizing this information from Duhamel du Monceau that makers at Givet (Ardennes), Saint-Omer, and Dunkirk, and also those in The Netherlands, used clays from Devres, Andenne, Hautrage, and Vallendar near Coblenz - Vallendar is ca.3 miles down the Rhine from Coblenz and approximately halfway between Coblenz and the Westerwald pipemaking area and clay deposits (see Section IV below). This is rather farther upriver than Cologne, in which region there were also important deposits of white-firing clays (see 2: IX).

At Dunkirk, the batteur (literally, beater, but the term is not known in the English industry), who was responsible for preparing the clay, accepted it and put it in a storehouse, preferably a loft, preparatory to being worked. The storehouse had windows which were opened to provide a draft of air when the weather was dry and were closed when it was damp. The clay came in cloth-lined baskets of the same capacity as those used to measure the clay in the mine, and was placed on planks if the storehouse was paved or tiled. The walls of the storehouse were lined with planks or matting to prevent the clay from touching the dampness or the lime on the walls, and to speed drying the lumps were placed on edge and apart from each other. The clay had to be as dry as possible before being soaked in water, hence the use of the windows referred to above. To keep the clay free from impurities, the batteur removed his footwear before entering the storehouse.

The preparation of the clay involved mixing and crushing, then soaking, pressing, and beating. The workshop had a bench and three iron-hooped wooden tubs (FIG 12,l-n). The bench was a solidly-built piece on four legs joined to each other and braced in one corner of the shop. The tubs were placed side by side in a line, and both they and the table were on top of planks, which prevented falling clay from picking up impurities from the floor. These planks were kept scrupulously clean by the *batteur*.

The equipment used by the *batteur* comprised: a *maillet de bois* (wooden mallet), *mandes* or *mannes d'osier* (wicker baskets), an *écumette* (skimmer), a *palette* (paddle), and *étampe* or *dame* (rammer), a *razette* (scraper), a *battoir* (club), a *brosse de crin* (a horsehair brush), and a *barreau* (bar).

The mallet (FIG 12,a) was used to crush pieces of clay that were too big before they were put to soak in one of the tubs. The obvious foreign matter was removed and pieces with gravel or iron stains were stored for *raccommodage des pots* - "pot repairs" - though what precisely this means is uncertain (this is discussed later). The wicker baskets, cloth-lined (FIG 12,b), were used to carry clay to the storehouse, as already noted, and to carry it from the storehouse to the *batteur*. The skimmer (FIG 12,j) was a circle of iron pierced with holes and with a handle attached; over it was laid a horsehair strainer or a fine brass-wire mesh screen. This was used to remove small impurities released by the clay during soaking which had floated to the top. The paddle (FIG 12,f), which was the same as the *louchet* previously mentioned, was a spade-like implement used to work the clay, and to move it from one tub to another and from the tub of the bench. The rammer (FIG 12,e) was used, in the same manner as the tampers formerly used to compact the fill of a hole dug in a road, to press the clay in the second tub. The iron scraper (FIG 12,h-i) was used to remove the clay from the rammer, and from the table after it has been beaten there with the bar. The club (FIG 12,g), very similar to the instruments formerly used to beat washing, was of wood and was used to beat the clay in the third tub, and to form the beaten clay into cubes. The brush (FIG 12,k) was used to sweep the bench before the clay was placed on it, and the bar was used to beat the clay on the bench. The bar (FIG 12,c-d) weighed 15 or 16 lb and was triangular in cross-section with one face 11 *lignes* wide and the other two faces, which were slightly convex, 2 ins wide.

Having made his choice of clay from the storehouse, the *batteur* broke the lump of clay into pieces about the size of a hen's egg with the mallet to make it easier for cleaning and soaking. The wicker basket was filled with these pieces and taken to the workshop, where the lumps were put in the first tub, which was filled to "about six fingers' width from the top". The tub was then filled to its top with water (experiments had shown that there was no difference between hard and rain water for this purpose). This task was generally done in the evening so that the clay could be left soaking overnight. The impurities - such as straw, wood chips, and the like which floated to the surface - were removed next morning with the skimmer, and the paddle used to cut and turn over the clay to ensure it was thoroughly soaked. The impurities rising to the surface as a result of this were again removed with the skimmer. When the clay was completely soaked, a channel was made in it to a hole in the tub side controlled by a tap, and the excess water run off.

The soaked clay could not be used by the *rouleurs* (literally, rollers, but the use of the term is unknown in Britain, at least to the present industry) and the mouleurs (moulders) until it had reached a certain consistency, either by evaporation or by mixing in dry clay to absorb the moisture. As the latter was quicker, the soaked clay was mixed with scraabes (spew) - trimmings from the pipes before they were fired - or fragments of unfired pipes, carefully collected and dried by the mouleurs and trameuses (trimmers).

Clay from the first tub was transferred to the second by the paddle and laid in a layer ca.3 ins thick. The surface was smoothed and the dry spew laid on top in a layer about ca.2 ins thick. The paddle was used to chop and mix this with the soaked clay; the strokes of the paddle were always made one at right angles to the previous one. Following this, another layer of soaked clay was laid on top of the mixture, and another layer of spew, and the whole mixture was again chopped and mixed with the paddle.

The next step involved the use of the rammer, which was used to compress the four layers until it was judged from the lessening volume that the spew had soaked in the excess moisture and become partially incorporated with the other clay. Then two layers of soaked clay were added, and two layers of spew; again this was chopped and mixed with the paddle, and again the rammer was used. Finally, yet more layers were added (the amounts are not specified) and the mixture rammed for much longer than on previous occasions - about quarter of an hour.

The next process was to scraabter the clay in the third of the tubs. The clay was lifted from the second tub with the paddle, and every three or four shovelfuls were beaten for a moment with the club. This was continued until all the rammed clay had been transferred. This process further mixed the spew and the better this was done the less time was needed for the next, and the most tiring, process, the beating of the clay with the bar.

By this time the clay was workable, but the spew were still not mixed in enough to hide its different colour. With the paddle, about 100 lbs of the clay was spread on the bench, the latter having first been cleaned with the brush. The clay was then beaten with the bar, first with the broader sides to reduce the thickness and then with the smaller face, starting at one end and finishing at the other, and leaving three-quarters of the thickness of the back of the bar between each blow (FIG12,o). The clay was then taken up with the scraper and laid so that the next beating was at right angles to the first, and following this the clay was relaid and beaten yet again in the original direction. A piece was then cut with a brass wire, and if it still revealed uneven colouring was given a fourth beating.

After being beaten and collected, the clay was put together and shaped with the club into rough cubes weighing 80-100 lb (FIG 13,a). The blocks were placed beside the bench on a form, and examined by the master-craftsman, who cut open some of the blocks with a wire to see that they were perfectly homogeneous. From there the rouleurs took the clay - under threat of fine they had to inform the master-craftsman if there were any impurities or unmixed colour in the blocks. In the best factories the batteur's workshop was beside those of the rouleurs and moulders.

Minor variations to the method were noted at several other centres in the area. At Tournai in modern Belgium a piqueron (FIG12,p), a long cylinder of wood with conical ends, was used instead of the club. The batteurs at Tournai disposed of still-dry parts of the clay during the beating process by spraying them with water which they held in their mouth - because the water was sprayed so well, the method was known as des brouillards (mists). At Tournai, and also at Valienciennes and Saint-Omer, a square-sectioned four-sided iron bar with one-ins wide faces was used to beat the clay: this weighed ca.20 lb, some 4-5 lb more than the Dunkirk barreau, and made the work even harder than it was with the Dunkirk bar as the square bar stuck more to the clay, but the beating was better done and finished sooner.

The batteur was expected to prepare every day enough clay for 16 moulders and to set aside poor-quality clay for raccommodage des pots as well as to take in the unworked clay and look after it in the storehouse, and to look after the spew which the workers collected and put in the storehouse. For this he was paid a monthly wage of 40 livres. (Subsequently, Duhamel du Monceau notes that a skilled moulder could produce ca.20 gross of pipes a week, which - assuming a six-day week - means a little over three gross a day. Thus 16 moulders would have made over 50 gross a day, and as half a hogshead of clay was needed for 26-27 gross pipes, the batteur would have had to prepare a whole hogshead of clay each day in addition to his related duties, a task which probably explains why his pay was approximately double that of the highly-skilled moulder).

The rouleurs took some of the clay and, on a smooth table, rolled out a rouleau (FIG 13,b) - roll, as it is generally called in the English industry. This was said to be the most skilled part of the process, as the exact amount of clay - the "nip" as it is called in English - for each type of pipe had to be accurately gauged by experience. These rolls were made in batches of 15 called a dozen, and stacked in a pyramid (FIG 13,c). By this time they were firm enough to be turned over when being dried.

When the right consistency had been reached (this was judged by experience), the rolls were detached and the bore made by the moulder with a broche de fer (iron wire) (FIG 13,e). The wire had its end slightly flattened and widened, and the progress of the wire through the stem as the stem was pulled over it was followed by the two fingers between which the stem was held. The wire was exactly the length of the mould, but initially not quite its entire length was put into the roll (FIG 13,d). The thickened end of the roll, which was to form the bowl, was then turned upwards, and the roll and wire set in a copper mould which had previously been oiled to prevent its sticking to the clay (FIG 13,f).

This mould imparted the shape and decoration to the roll, and its two halves were pinned together through holes made for this purpose. It was then placed in the press (or chest, as it is called in the English industry). This comprised a base and two sides in one piece of heavy cast-iron and inside it a plate of polished iron and another of wood (FIG 13,i). The iron plate was pushed by means of a screw against the mould which rested against the wooden plate, in its turn resting against the side of the press (FIG 13,h and j).

This formed the stem, but the bowl was still to be made. To do this the worker first used his index finger to spread the clay in the mould which was to form the bowl. He then took the étampeux (stopper) and inserted it (Coolen (1970: 390), who is following Duhamel du Monceau, uses here the term étampeur). (As this instrument had a T-handle to it, it was presumably turned round in the mould to form the bowl - as will be noted later, latex moulds of the insides of Dutch bowls also indicate that the stopper was turned inside the mould.) The stopper was acorn-shaped, and to prevent it from penetrating too deeply and damaging the heel (which had already been moulded with the stem) a leather washer was solidly attached round the stopper at its junction with the cup of the handle to prevent farther penetration. The mould was then taken out of the press, the wire pushed through to the bowl to complete the bore (presumably the stopper was removed immediately after it had formed the bowl, though this is not stated), and the pipe removed from the mould (FIG 13,l). The pipe was then ready for an initial trimming, this being done with an estriqueux (finisher's knife, but in this case more than the English tool of that name) (FIG 13,m). This was a multi-purpose instrument, having a hook at one end for trimming and smoothing, a curved point at the other to remove the "dottle" or "pep" (as it is called in the English industry) of clay left in the bowl by the wire's coming through, and - set on an arm obliquely to the handle - a copper or iron blade to trim off the excess clay of the stem. Following this stage, the wire was removed and the pipes set aside to dry (FIG 13,n).

When the pipes reached a certain consistency, they were taken for further trimming - the irregularities of the bowl were removed and the lip of the bowl rounded off with a bouton (button) of copper or horn (FIG 13,o). The button fitted over the bowl, having a lip to overhang the top of the bowl, a groove to take the bowl top, and a nipple fitting the mouth of the bowl - it was placed over the bowl and turned. The pipes were next placed back in the mould to straighten them and then arranged on trays which had a groove on either side to take the heels of the pipes (FIG 10,p). After this they were left until they were hard enough to take the final polishing, to be given the maker's stamp, and to have a serrated edge added round the lip of the bowl.

The polishing was done with two pebbles called pierres de torrents (a term for which no equivalent appears to be known) in which two channels, to take the size of the stem and of the bowl, had been formed. The manufacturer's mark was made on the stem with an iron blade engraved with the desired design and lettering, and this was passed several times round the stem. The denticulation was put on with a fine saw which was run round the lip of the bowl, using the button as a brace. When there was decoration imparted by the mould the worker touched this up with an iron point. The pipes were then set aside to dry.

A skilled worker was able to make ca.20 gross (that is, ca.3,000) pipes a week, being paid five sols a gross. This gave him a weekly wage of about five livres and a monthly wage roughly half that of the batteur. It was said that with half a hogshead of prepared clay it was possible to make 26-27 gross pipes.

A variety of kilns could be used to fire the pipes, the next stage in the process. In Rouen, according to Duhamel du Monceau's source, small kilns were used. These started at five or six ft in height and were circular, tower-like, constructions. At their base was the furnace, and above this but inside and separate from the outer wall was the pot or chambre holding the pipes. This was in fact a muffle kiln, the muffle (the pot or chambre) being heated through its base and sides (FIGS 13,r-s and 14,t-u). The fuel used was dry deal, which gave off a strong heat with little smoke.

The pipes were stacked almost vertically on their bowls round a hollow clay tube called a chandelier or fuseau (literally, a spindle or pintle) (FIG 15,t, cf FIG 18,y) which fitted over a vertical iron shaft and which had grooves on which to rest the stem ends. The stacking was called to empoter (potting). To stack a number of tiers of pipes gassettes (a variant of casette, a saggar) or boisseaux (literally, bushels) - open-ended cylinders 10 or 12 ins in diameter (FIG 15,r-s) - were used. These were set one atop the other round the central shaft, and the pipe bowls were set against the saggar wall with their stems on chandeliers set one above the other on the shaft. The pipes were arranged so that the first three or four tiers sat on their bowls and the next tiers had the bowls uppermost. This allowed the kiln to be used to its maximum capacity - 19-20 gross. The part of the kiln holding the pipes was then closed with dorures (gildings) - sheets of heavy paper smeared ("gilded") with liquid clay - which was supported by defective, already fired, pipes. The outer mantle was closed with tiles and a chimney put on to take off the smoke and heat. Firing took six or seven hrs. (As is noted later, muffles used by English pipemakers were made of pipe-fragments cemented together with clay, apparently pipeclay. The actual clay used for these Rouen muffles is not stated, but the inferior-quality pipeclay noted earlier as being set aside for raccommodage des pots may have been used for making and repairing the pot or muffle. It is likely it was also used for the dorures.)

After firing, the two tops were removed, leaving the kiln about four ft in height, and a large plank or tile was put over it to retard the escape of the heat, and allow the pipes to cool gradually. This operation was called to depoter.

The large kilns, however, functioned differently. They were up-draught kilns, large square structures, rather like brick and tile kilns (FIGS 14,y and 15,x). Above the furnace, but not cut off from it, was a chamber where the pipes were stacked in fireclay boisseaux in the same manner as in the small kiln previously described - Duhamel du Monceau's illustrations show nine such columns, each three boisseaux high (FIGS 15,u and 14,w). The cone of pipes at the top of each column was sealed with tiles, the doorway was bricked up, and the fires were lit. At first the fires were kept very low, then gradually increased, this continuing for 14-16 hrs. The fire was then allowed to go out and the door opened, but the pipes were not taken from the boisseaux until the latter were nearly cold, and until there was no smoke in the kiln.

Duhamel du Monceau listed the advantages of these kilns over the small ones as follows: they were solidly-built and durable, and needed little repair; it was not necessary to rebuild the top of the furnace each time; a large number of pipes could be fired at the same time; and the heat was applied directly the the boisseaux and was thus used more efficiently.

About 1730 a method was discovered at Saint-Omer for reducing the reddish tinge that clay from Menneville, just outside Devres, gave to pipes (Duhamel du Monceau 1771: 11-12; described in Brongniart 1854 ed: II, 186, 187 and in amplified form in Tomlinson (ed) 1852-4: II, 451). When the kiln was at full heat its chimney and all other openings were closed for three-quarters of an hour. This resulted in carbon being deposited on the pipes. The openings were then unstopped and the heat increased for quarter of an hour, during which time the pipes became red hot and the carbon was burnt off. This was repeated over a period of 22-24 hours and on the final occasion the pipes were left in the heat for an hour. Tomlinson noted that the effect of this was to change the red iron peroxide to a pale green protoxide the colour of which was scarcely noticeable, although the inside of the bowl, as Duhamel du Monceau also observed (1771: 9), remained slightly red.

The final check was to see that the pipe drew - that is, that the bore through the stem to the bore allowed air to pass freely.

At this stage the pipes had not received the finishing which was the most visibly characteristic feature of Dutch pipes and those imitating them. The common clays (as they are called in the British industry today) were dipped in a very liquid slip of fine clay which was allowed to dry on naturally. This increased the whiteness. They were then polished with a slightly rough piece of fabric.

However, a much better varnish was also used. Its composition was kept a secret, and it was given out that it was a boiling down of gallnuts mixed with whitening, but in fact, according to Duhamel du Monceau's informant, it was a mixture of soap, wax, gum, and water. A quarter of a lb of hard or soft soap, two oz of white wax, and one oz gum arabic (or, in another version, said to be better, a paste made from parchment) were boiled for three or four minutes in six-and-a-half Imperial pints (four Paris pintes) of water and then allowed to cool, the mixture being stirred with a bundle of twigs in order to break up the wax, which had not dissolved, into particles small enough not to reform on the surface of the water.

Another varnish used was apparently a mixture of oil, soapy water, and some animal or vegetable gum: this served, as did the others, to prevent the lips sticking to the porous clay, but it did not give as shiny a surface as that obtained when wax was used in addition.

The prices of pipes produced in the north of France varied considerably according to their size and quality; from six and a half to one and a half livres a gross.

The mid-C18 edition of Savary des Bruslons's Dictionnaire universel..., where the entry on pipes is probably basically early C18 in date (see p.54 n. 16 above), notes that pipes could come "varnished" in various colours, and describes Rouen-made pipes being packed for shipping in hay in small beechwood boxes generally of one gross capacity (Savary des Bruslons 1759-65 ed: IV, cols 199, 200).

In 1789, one Coquebert de Montbret gave a very brief description of the manufacture of pipes at Dieppe (quoted in Bastien 1973: 2nd chapt). A white-firing clay from Neufchâtel-en-Bray [3] (cf pp109 above and 430 below) was used; the method of preparation was kept secret. The pipe had a narrow, well-proportioned stem "incliné en avant" and probably ca.13 3/4 ins long (Bastien quotes the figure as ca.35 mm, ca.1 3/8 ins, which given the rest of the description is impossible, and it is probable the length cited was meant to be ca.35 cm). A boy made the roll, a workman made the bore through the stem, and the pipe was put in a copper mould to dry. The pipes were potted in a saggar "of the same clay" (as the pipes) and fired. The smallest were sold at 36 sols - one liard - a gross. This description is clearly much abbreviated and very inaccurate - moulds could not possibly have been kept out of production while pipes dried in them, for example - but the reference to the saggars being made of pipeclay, if correct, is of interest as this does not appear to have been usual.

A report in the Saint-Omer municipal archives by the then-proprietor of the Fiolet factory Louis-Maximilien Fiolet père to the Mayor of Saint-Omer, discussing the factory and its products at the time of writing, June 1819, has recently been discovered and published (Coolen 1971), and this affords some details on manufacturing processes of the period.

The factory them employed between 400 and 500 workers - men, women, and children over ten years old. The clay for pipe-making came from Jemappes immediately west of Mons, and Andenne, in what Fiolet calls the département of Sambre-et-Meuse, though this area, that round Namur, now in Belgium, had ceased to be part of France in 1814. The Dutch, M Fiolet said, also got their fine clays from these places. Common-quality pipes were made of Jemappes clay. All clay was carried to Saint-Omer by water (as it was, for example, into Staffordshire until at least the 1960s as being the cheapest method). Three hundred and fifty thousand kilogrammes of clay (ca.345 Imperial tons) were used a year. Saggars were made of clay from the Arras (Pas-de-Calais) region.

A pipe passed through 15 or 16 different pairs of hands before reaching the firing stage. Iron and copper for the presses and moulds were used in large quantities; and oil, white wax, and Castile soap were also used in very considerable amounts. Colza oil was used (as it is still used at Pollock's, the last surviving British pipe factory), 300 kilogrammes (ca.660 lb) in a year. The kilns were wood-fired, 70,000-80,000 large faggots being required in a year (later in the century, when the firm was at the height of its fame, the new factory used coal (Coolen 1970: 393)). The production of packing-cases to ship the pipes was apparently done in the factory, 60,000-80,000 planks being used a year.

According to Molinier (1899), clay pipe bowls and stems were made separately. One assumes this is in France, though this is not specifically stated. The stems were made either in a special press known as a presse à columbins or they could be rolled out from a ball of clay. A small piece of clay was then added at one end from which the bowl was to be made. The bore was made either with a strip of brass or a strip of oiled paper (though how the latter was used is not stated) inserted almost as far as the bowl, and the pipe put in a copper bipartite mould and set in a vice. The bowl was then made by forcing in and turning a copper étampon, which appears to have been the same as Duhamel du Monceau's étampeux. The wire was then pushed completely through to the bowl to complete the bore; the pipe was then trimmed and taken from the mould. If the stem was to be curved, this was done at this point, and the pipe left to dry slowly in the shade before firing.

Firing was done in cylindrical or rectangular kilns, the pipes being put in saggars covered by conical lids attached with a clay paste and the spaces between the pipes filled with a finely-ground fired clay. After firing, the porosity to the lips was lessened by dipping the pipe in water with a thin suspension of clay in it and then polishing the pipe when dry with a flannel. High-quality pipes were polished with a flannel dipped in a mixture of gum, soap, and wax disolved in boiling water.

A good deal of this description harks back to Duhamel du Monceau and Diderot, and it is difficult to know how much is an uncritical acceptance of these accounts as being relevant for the time of writing and how much is a genuine continuation of methods described in the C18 - undoubtedly some of the latter should be present, for C20 Belgian and Dutch pipemakers have been using substantially the same procedures as those noted by Duhamel du Monceau.

The Encyclopédie containing Molinier's article was published over the period 1886-1902, but in view of the cursory way in which wooden - including brier - pipes are dismissed and only clay and meerschaum pipe-manufacture described in detail, it is possible the article reflects information from an appreciably earlier period. Adolphe Bitard in his Les arts et métiers illustrés of ca.1885 (quoted in Colas 1959: 234-5 and without source given in 1962: 31-2; I have not yet been able to consult the relevant volume of the original) describes French pipemaking and notes bowls and stems being made separately - this source appears to have similarities to Molinier (see below). An English C19 encyclopaedia, Ure's A Dictionary of Arts, Manufactures, and Mines;..., also claims that bowls and stems were made separately, and so does a French encyclopaedia of similar date, Laboulaye's Dictionnaire des arts et manufactures...: unfortunately, this writer has been unable to obtain copies of the first or second editions of Ure's work (published 1839 and 1842 respectively), but if, as seems probable, their accounts of pipe-manufacture are the same as that appearing in the third (1848), fourth (1853), and fifth (1860) editions, then Laboulaye may have copied Ure on this point and perhaps also on the alleged firing of meerschaum pipes (see p.264 below), for the first edition of Laboulaye appeared 1845-47. The fifth (1881-82) edition of Laboulaye has an identical entry to that in the first; the kiln-illustrations in Laboulaye are identical to those in Ure, but the description of the manufacturing process is a condensed and generalized account of the Duhamel du Monceau-Diderot account. Like the later Molinier and like Brongniart, whose work first appeared in 1844 (i.e. before Laboulaye's encyclopaedia) though this writer has been able to examine only the second (1854) edition, Laboulaye refers to the use of a presse à columbins and an étampon, suggesting some copying among these works. Brongniart, at least in his second edition, also refers to pipes being made in two parts. In English-language accounts of pipes made in this manner, Sprague (1947: 1) is simply quoting Ure; I.J. Williams (1932: 140), allegedly describing the manufacturing methods used by the firm of Pardoe of Nantgarw near Cardiff, 1833-1920, claims this method of manufacture, though there is internal evidence in his description and elsewhere in the article to suggest he was not using first-hand accounts for some of his information.

Brongniart's account (1854 ed: II, 179-88) is of some interest because other evidence would suggest he was a careful recorder. He commences his description of pipemaking by saying (p.179) that he has not been able to study pipe-making in detail at first hand and will therefore rely largely on Duhamel du Monceau's account. There follows a compressed version of the latter, using the latter's illustrations. Where additional material appears

- for example, the observation (p.184) that a kiln at Gouda seen by the writer in 1835 was the same as that illustrated by Duhamel du Monceau, or that coal was now the fuel used there and not peat (p.185), or that a kiln at Forges-les-Eaux was similar in shape to that illustrated at Dunkirk by Duhamel du Monceau though its firing was different (p.185) - it is generally stated that this is from a different source, which makes the entirely casual remark - not borne out by the illustration referred to in the text (a Duhamel du Monceau copy) - that a ball of clay was added to the stem to form the bowl, the more curious.

It is possible that Brongniart did not read Duhamel du Monceau carefully and misinterpreted the illustration there and in Diderot which shows no clay for the bowl at the end of the roll in the mould (the bowl being formed, as already noted, by spreading the clay in the mould at the base of the opening for the bowl on to the walls of the mould). Indeed, the Diderots, in their summary of Duhamel du Monceau's account say (1751-72: IV, 377):

> *Quand la broche est entrée de toute sa longueur, qui est celle même du rouleau, il donne un coup de pouce à la boule de terre* d *[referring to illustration] qui doit former la tête de la pipe*, *pour commencer à lui faire prendre l'inclination qu'elle doit avoir dans la moule*.

While the expression *la boule de terre* means "the clay ball", it is quite clear from the text and also the illustration that this ball is merely the enlarged end of the roll; but it would not be difficult to misinterpret this remark at a hasty reading.

The problem is much complicated, however, by an additional set of illustrations in Diderot (vol VII pl XVIII and captions) unrelated to the article on pipemaking. The plate, entitled *Potier de Terre, Outils et Pipes*, illustrates a number of items connected with the preparation of clay not specifically for pipemaking, but also illustrates a Dutch pipe, a Rouen pipe, and a most peculiar process for apparently producing clay pipes. A piece of clay was rolled out to form a long, thin, rectangular piece: this piece was curved lengthways to form a trough, then completely curved to form a long tube. A collar - presumably of clay - was attached at one end. A brass wire *mandrin* - a term which normally means a punch, chuck, mandrel, or tamping-iron or -bar - was then inserted the length of the tube. How the bowl was made is not stated, though a *moule* - which is in fact not a mould but a type of stopper - is shown. Possibly the bowl was formed by moulding clay over the end of the stopper. Once formed, the bowl had the end which was to be attached to the stem curved to fit the line of the stem, and presumably (though this is not stated) the bowl was slipped on to the *mandrin* and the stem collar smoothed down over the stub stem of the bowl to effect the joint.

Frankly, a more Heath-Robinsonish way of making clay pipes can scarcely be imagined. The particular set of illustrations is not referred to at all in the section in the text for manufacturing pipes, and a narrow and delicate pipe stem, with a bore of probably ca.5/64 ins, could not possibly be manufactured by this method. This section of Diderot must, for the moment, remain an enigma.

As many C19 dictionary- and encyclopedia-compilers shamelessly rehashed earlier sources and exhibited little desire to check the then current manufacturing process, it is probable that inaccurate statements went unverified, to be perpetuated by later plagiarizers.[4] However, Brongniart (like Molinier, though of course the latter could have been uncritically following Brongniart), does refer to the stem blanks being produced in a *presse à columbins*. The word *columbin* is applied to a number of articles all suggesting a rolled-out cylinder from which blanks or the like would be cut; it is a technical term for what Pollock's of Manchester, the only British pipemaking firm still manufacturing (see later), call "strapping" - the strip of clay used to seal saggars to each other as they stand in the kiln. Derived terms such as *colombeau* and *columbelle* have similar usages (I am grateful to Professor D. McMillan of the Department of French, University of Edinburgh, *in litt.* 21 March 1969, for assistance with this term). It would appear, therefore, that a *presse à columbins* was specifically designed to produce rolls in the pipemaking sense: this might reinforce the argument that the stems were prepared separately from the bowls. T. McLuckie of Glasgow provisionally patented a machine in 1874 which made stems and bowls separately, but the invention, which was to give a socketed joint in any case, appears never to have gone farther. Nevertheless, it seems unlikely both on grounds of complexity and time involved and because of structural weakness in the pipe, that such a method would commend itself to pipemakers. Bitard's description of ca.1885 quoted by Colas (above) notes that the stem could be prepared either by a *moule à la presse* or by hand. This work was done by a boy, who then added a small ball of clay to one end of the stem and passed it on to a workman. He took an iron or brass needle dipped in oil, placed it in the centre of the stem, and carefully pushed it centrally through the length of the stem. When the wire was a little more than half-way in, the roll was in a bipartite copper mould and an *étampoir* used to form the bowl by pressing in and turning. The wire was then pushed fully in to complete the bore to the bowl. The pipe was then trimmed and removed from the mould, and was then ready for ornamentation or marking before being polished. Relief ornamentation was mould-imparted, impressed decoration was put on with an embossed roller. There was a special treatment (not described) for parts of pipes to be glazed.

If the stem was to be curved, this was done when the pipe was taken from the mould, it being then still moist enough for this. After this the pipes were put in the shade to dry. They were then fired in special small kilns holding 3,500 to 4,000 pipes at a "moderate" temperature for eight to nine hours. The pipe was then in a "biscuit state", which was best for smoking and also for seasoning and colouring.

When cool, ordinary pipes were dipped in a clay slip, dried, and rubbed with a flannel; higher-quality pipes were polished with a varnish of gum, wax, and soap mixed with water, and rubbed dry with a flannel.

This description, as noted above, has similarities to that of Molinier, though the two accounts are not identical. Although no technical terms are noted - beyond possibly *étampoir*, which does not appear in the dictionary - and it is almost certain that the roll would have been pulled over the wire, not the wire being pushed into the roll, there are elements which suggest careful observation: for example, the reference to the wire being inserted "a little more than half way" into the roll before the latter was placed in the mould. The problem of whether to accept the statement that pipe-rolls were made in two parts, one for the stem and the other for the bowl, therefore becomes more acute; the overriding factor, however, still is that there seems no reason why a more complex process, and one which would have tended to cause a structural weakness, should have been used in place of the normal simple one-piece roll.

At Givet (Voisin (ed) [1950]: 11th-14th pages), the Gambier firm soaked their clay for a fortnight in vats of ca.30 cubic metres' capacity in cellars. The clay was then taken out and placed in heaps for another fortnight. After this month it was adequately hydrated and put through a pug-mill. These mills, originally worked by horses, were hand-turned until some time before WW I, when electric motors were introduced.

The clay was now ready for the pipemaker, and young workers were responsible for making rough-outs of the bowl or whole pipe (depending, presumably, on whether the final product was to be a bowl and stub stem only or a complete clay pipe). The rolleur or rouleur then made the rolls on a small plank, the "bench", "dozening board", or "bunch board" of the British industry and the rollenbank of the Gouda industry (see Sections VII and II below respectively).

The rolls were set aside to dry for two or three days, and then sent to the mouleur for moulding. As late as 1913 the superbly-made Gambier moulds were engraved in the factory by a specialist in this line. In the manufacture of the normal clay pipe a long wire needle was first used to make the stem bore, the bipartite mould was closed in a vice, and the bowl formed by the schtoup (stopper), which was inserted by hand and forced the excess clay out the mouth of the mould.

The next process was the tramage (trimming). The wire was left in the pipe to facilitate handling, and was pushed through to join the stem bore to the newly-made bowl. The trameuses (trimmers - feminine) removed the mould-lines with a curious and un-named tool in the form of a pair of tongs between whose ends the pipestem was passed. The pipes were left to dry for a few days and then polished with an agate.

The next stage was the empotage (potting) and firing. The pipes were placed in superimposed layers in cazettes (saggars) made in the factory and each layer was covered by silicious sand or ground-up fired pipe-fragments (the accompanying drawing shows them embedded vertically bowl down, but this seems unlikely). Latterly the kilns were coal-fired, but until the closing years wood was used. Firing with wood was an arduous task for those involved, as the fuel had to be continuously fed to the kiln (an account of glassmaking at the French plate-glass works at Saint-Gobain in Picardy in the first quarter of the C19 (noted in Knowles 1927: 343-5) records that the faggots of beechwood used as fuel were thrown into the furnaces by men stripped of all superfluous clothing running round the furnace at a speed "equal to seven leagues in six hours"). The saggars were placed in staggered rows one above the other with the fire heating through vents from underneath, according to the accompanying drawing, and each kiln produced several thousand pipes. By 1913 there were only one or two firings a week, which implies firings had formerly been more frequent (the number of kilns is not stated). According to the account, wood-firing gave a temperature of

"200 ou 300 degrés" and firing continued from four a.m. to nine p.m.; the introduction of coal-firing halved the firing time. Presumably the degrees are centigrade, but 200°-300° is much too low a firing temperature even if Gambier products according to a source of 1866 did have a reputation for being fired "souvent un peu faible" (quoted in Jean-Léo 1971: 15), and must be an error: other evidence points consistently to 940°-1,000°C or even higher - 1,100°C being recorded at Andenne - as the firing range for clay pipes (see Sections II, III, and VII below). Indeed, it is doubtful if a pipe fired to 200°-300°C would be of any use at all; they would certainly have been extremely brittle (cf Sections VII and IX below.)

After firing, the pipes were taken in baskets to the émailleuses - women who enamelled them in various colours. This form of decoration was distinctively Franco-Belgian and German last century; it never appears to have been a British or Dutch trait. Though common on pipes seen by this writer in Belgian and French musuems (which tend to collect objets d'art rather than less spectacular examples), and on German pipes seen while visiting the Westerwald, no such decorated pipes have been found archaeologically in Britain or North America to this writer's knowledge; French pipes found on excavations appear to have been the plainer and presumably cheaper varieties. Each émailleuse mixed her own enamel with a combination of gum tragacanth, powdered coloured glaze, and water; a thin enamel was used for brush work, a thick enamel when using a steel point.

When enamelled, the pipes were again fired to fix the glaze. The kiln was heated white-hot to ca.1,000° and after three hrs was loaded with the enamelled pipes laid out in dozen lots on small plaques of sheet metal which were placed on fireclay trays stacked in the kiln. Because of the high temperature these trays had to be replaced every fortnight. The furnaceman judged the length of firing - ca.20 minutes - by experience, and when the pipes were removed from the kiln they were ready for use. (This would be enough to fire properly pipes already fired to 200-300°, as the Gambier firm is alleged to have done (see above), but it would not solve the problem of those pipes fired to 200-300° which were not enamelled and thus not refired in this manner.)

Certain types of pipes were specially treated to season them, being soaked in a preparation of alcohol, then dried, varnished, and wrapped, all done in the dark because when exposed to light pipes treated thus rapidly darkened. The footnoted remark that this work resulted in cases of severe alcoholism among those engaged in this work is scarcely surprising; unfortunately just how this coloured the pipe is not clear. Versions of this tradition may exist in the secret finish used by the London pipemaker Crop last century for his pipes and the habits of smokers soaking their pipes in beer or tea before use (see Section VII below). In 1867 an account noted "varnishing" in the manner described by Duhamel du Monceau - dipping the pipe in a mixture of soap, wax, and gum, and giving it a highly-polished finish by rubbing it with a flannel - but this was apparently later abandoned by the firm.

Best-quality pipes were wrapped in coloured tissue-paper and carefully packed in a case all of whose sides were protected with hay. Each layer of pipes was separated from the next by a layer of corn ears minus their grain. Ordinary pipes were packed in cases without the tissue-paper wrapping. In this manner they were shipped all over the world - as late as 1923 orders were sent to Canada, Japan, England, and The Netherlands.

From the description of the manufacturing process given in Voisin, it seems probable the Givet industry spread from that at Andenne in Belgium. As noted in Section III below the Andenne industry was started by a German pipemaker from the Westerwald in 1768 and the Andenne technical terminology bears this out. Certainly the term _schtoup_ used at Givet for the stopper is Andenne-Westerwald, and probably the term _rolleur_ (_rolleuse_ at Andenne where women latterly did this work) is also as the pronunciation of the first part of the word is as in the English-Dutch-Westerwald-Andenne tradition as opposed to the more orthodoxly French _rouleur_ noted by Duhamel du Monceau as being used at Dunkirk, where the terminology has been Gallicized more thoroughly than at Andenne. The trimming tool used, however, had no parallels known to this writer, and may possibly have been of local invention. (The spread of German-derived terms into Belgium and to Givet and Saint-Omer, where many Belgian workers were employed, is noted by Jean-Léo (1971: 8 and n.1): at Mons near the French border the term _schtoup_ for the stopper was also used, while at Chokier near Liège the term _trumeuse_ was used for the trimmer and is clearly a variant of _trameuse_ derived from the Westerwald _Trümmerin_. At French pipemaking centres removed from Belgian influence, such as Montereau-faut-Yonne SE of Paris - though started with Saint-Omer families (Colas 1959: 234 and 1962: 31) - and Erôme and Marsailles in SE France these terms are not found, according to Jean-Léo, though unfortunately he does not give a complete list of French technical terms, noting only _rouleur_ for the roller, _estampeux_ for the stopper, and _trameuse_ or a variant _tramasseuse_ for the trimmer.)

At Forges-les-Eaux, NE of Rouen, black pipe-bowls were produced by refiring them at a lower temperature in saggars full of oak sawdust (the pipes in question were bowls with stub stems designed to take a wooden or similar stem). This produced a mat-black finish; a polished surface was obtained by coating the pipe in graphite and polishing it hard with a cloth (Brongniart 1854 ed: II, 187; also in Tomlinson (ed) 1852-4: II, 451). This is similar to the deal sawdust used at Andenne (Section III below) and the coal-dust used at Glasgow (Section VII below) to obtain black pipes. As in his description of the method used to remove the reddish tinge from pipes made of Menneville clay taken from Duhamel du Monceau and Brongniart (see above), Tomlinson offers a more detailed explanation of this blackening process. The saggers, he says, were partly filled with oak sawdust and placed in the upper part of the kiln, where there was less heat. The carbon from the wood coloured the clay but the temperature was not high enough to burn it off; the pipes came out of the kiln with a dull black colour and were then dusted with plumbago and rubbed hard with a cloth to polish them.

At the Musée du Tabac, Bergerac, a brass bipartite mould is displayed. This resembles those illustrated by Duhamel du Monceau quite closely, and has the depression near the end of the stem which Duhamel du Monceau mentions on Dutch moulds (though he does not mention it on French moulds) as being the mark from where the exact pipe length was measured - in other words, the short piece beyond this point was cut off after the moulding process. According to the guide book (Anonymous n.d.[2]: 6th page) this mould belonged to the Gambier firm and was saved from destruction during WW I; it is said to be of copper, but appears to be of brass (for the Gambier firm see 3: V).

There are also exhibited plaster bipartite moulds. How these were used is not indicated: they are extremely light to handle but must have been very fragile and certainly could not have stood the handling that metal moulds get when in the vice. On the evidence of the Van der Want pipe-factory at Gouda (see below) it is probable that these moulds were matrices for the production of fresh metal moulds. Moulds are no longer made in Britain or the Westerwald, but Gouda pipemakers still make their own moulds when necessary (see p. 112). (Plaster moulds are noted in North Carolina, and it has been suggested (Albright 1958: 20) that they were probably hand-used by when speedy or large-scale production of pipes was not necessary. This seems unlikely, however, and as Albright notes two iron patterns which were used to cast the pipe-moulds - the latter were made of brass or lead - it is likely that the plaster moulds were used to produce these patterns (see Sections II and VII).)

The brass mould in the museum does not have the slot in the top typical of British moulds and made to take the knife used to trim the top of the bowl, nor is this a feature on any of the moulds in the museum at Andenne illustrated by Javaux (1925: pls between pp22 and 23) or seen by the writer there in September 1969.

A brass stopper is also displayed at Bergerac, complete with the washer to prevent it penetrating too far into the bowl when being used. Unlike those illustrated by Duhamel du Monceau, however, it is assymetrical in shape, and must have been inserted by a straight-forward thrust. The top part has been squared off from its original cylindrical shape and must have been set in something, but no trace of this attachment now remains.

SECTION II:
METHODS USED AT GOUDA, THE NETHERLANDS

In the Netherlands, according to Duhamel du Monceau's informant, the method of preparing the clay was rather different (the descriptions are of Gouda factories). The clay was well dried, and powdered with a mallet; it was then soaked in water for one or two days. The excess water was then run off and the clay worked with an iron shovel until it was the consistency of thick paste. From this were kneaded loaflike pieces and these were pugged in an elaborate mill. This comprised basically a cylinder with a central shaft to which was attached horizontal blades holding vertical teeth. The central shaft was turned by horses (FIG 16,a-c) (cf Brears 1971: 92-3). When it was judged that the clay was sufficiently well mixed, a piece was cut with an iron wire. If the colour was uniform, the clay was ready for the rouleurs (Duhamel du Monceau does not refer to the Dutch workers by their Dutch terms). The clay was then formed into loaves ready for the rouleurs. (This procedure emphasizes the Dutch preoccupation with the perfection of their products, for their clay is more carefully and also more efficiently refined than by the method Duhamel du Monceau records for northern France.[5] This perfection was maintained throughout the pipemaking process, resulting in a superbly-finished product. One English observer at the end of the C17, commenting on a small number of imported Dutch pipes, said

> truly [they] are very fine. If there comes no more they'll
> do us no great hurt

and went on to urge they be used to set an example to English pipemakers (Houghton 1695/6: 1st page). However, even today, Dutch clay pipes are more finely made than English or any other clay pipes.)

(Brongers (1964b: 37) describes a slightly different but equally careful process. The clay was crushed, soaked in water, and mixed with broken unfired pipe fragments. It was then put through a mill. Following this it was stored in large cellars to macerate for about six months. This was then ground again and was then ready for the pipemaker.)

The rolling, and the moulding, differed in detail from the processes used by the French. The amount of clay for the pipe was again judged by experience - the pipe shown in the example given has a very much longer stem than the example given for northern France. The rolls (FIG 16,d) were made in batches of 24 (this was apparently not called a dozen) and stacked three rows deep (FIG 16,e). The clay used was firm, so that the pipes could be turned over and dried better without losing their shape or sticking to each other. The same type of wire with the expanded, flattened end was used (FIG 16,f), but to insert it (at least in the long pipes) the rolls were placed on a narrow wooden tray with sides which was attached to the work bench and sloped upwards away from the worker (FIG 16,g). The wire was oiled before use, a process not noted as being done in the northern French centres (though it seems likely that it was in fact done). The mould was of brass.

The mould described (FIG 17,i) was - apart from its length - fundamentally the same as that described as used by the French; however, the part shaping the stem was invariably thicker towards the bowl than at the mouthpiece. In the mould illustrated by Duhamel du Monceau - that for a pipe 28 pouces long (a fraction under 30 English ins) the stem thickness at the mouthpiece was two lignes (ca.3/16 ins) and at the bowl four lignes (23/64 ins). A small depression near the end of the mould on the stem indicated the exact length the pipe was to be. (The bowl for a pipe this size was two pouces in length and one and three-quarters wide.)

The chest (FIG 17,k) was exactly the same as that used by the French, except that several sheets of cardboard were placed between the wooden plate and the other side of the vice - Duhamel du Monceau said this was apparently because, adding give, they prolonged the life of the mould.

The bowl was made in the same manner as those in France (the Dutch stopper is illustrated in FIG 17,l), but the trimming was rather different. The Dutch used a handle of wood with a wire hook at one end and a blade set on one side (FIG 17,m). The hook was to trim the stem, the blade to cut off the excess stem at the mark left from the mould. Following this the pipes were arranged on a table with a groove on either side which took the heels. They were then left on trays (FIG 17,o) to dry for a certain time (a time judged once again on experience).

Those engaged in this work earned four to six Dutch sols per gross; those doing the rolling were paid rather more than the others. A gross here was 168 (fourteen dozen). However, eight pipes out of every gross were set aside to recompense workers who accidentally broke pipes.

When the pipes reached the desired consistency they were further trimmed, and for this operation the wire was again inserted so that the pipe could be held without its bending. All this trimming was done by women. The instrument used first was a knife (FIG 17,n), which was used to trim the bowl. On the back of its blade was a finely serrated edge which was used to make the denticulation round the rim of the bowl. A semi-circular notch in the blade near the handle was used to trim the stem - this notch did not have a sharpened edge. A hooked wire on the other end of the handle was to remove the dottle from the bowl where the wire had pushed the clay through.

The excess clay of the bowl mouth was cut off and the edges trimmed with a button (FIG 17,p) similar to that used by the French except that it was much flatter, rather like a draughts counter. (One would have thought this more difficult to manipulate than the French button.) The body of the bowl was polished with an implement shaped rather like a miniature sickle with its iron blade flattened and smoothed on the inside of the curve (FIG 18,r). After this process the denticulation was applied and the dottle removed; then the stem was trimmed with the semi-circular notch in the knife already noted, and polished with a small iron bar on one face of which were three differently-sized grooves to work the various thickness of the stem (FIG 18,s). The maker's name, that of the city of Gouda, and a decorative denticulation were put on the stem with a handled blade engraved with the names and having one edge serrated with the denticulation (FIG 18,t). The maker's mark was then placed on the base of the heel with a stamp (FIG 18,u) (if the coat of arms of Gouda was also put on the side of the heel, as it was for certain classes of pipe, this mark had already been imparted by the mould).

The wire was then withdrawn and the pipes stacked and dried on trays (FIG 17,q) until they were no longer supple - in summer they were dried in the sun, in winter in rooms heated by stoves, care being taken with this process as the pipes warped if dried too quickly.

Following this the pipes were polished once again, with the sickle-like instrument referred to above and with a well-polished pebble, often an agate or flint, shaped into a cone and attached to a wooden handle by a copper ferrule (FIG 18,v). The women were paid two to three sols a gross for this work.

The manner in which the Dutch fired their pipes again indicates the care with which they made their products. The saggars into which the pipes were placed were circular in cross-section and in the form of an inverted truncated cone, being one ft wide across the mouth and nine ins across the base, and were two ft deep (FIG 18,w). The saggar stood on small feet, and took a conical cap. Into the saggar was placed a hollow clay tube two or three ins in diameter with a flared base and called as a result a trompette (the word is spelt the same in French and Dutch). The top part of this "trumpet" had vertical grooves, and farther down the tube were cut vertical slits (FIG 18,y). The pipes were placed bowl-downwards in the saggar with the stems resting in the grooves at the top of the trumpet, and the saggar was then filled until the topmost stems were over a foot above the top of the trumpet and the rim of the saggar (FIG 18,x). Finely-ground fired pipeclay (gruys - modern Dutch gruis, grit) passed through a fine sieve was then poured into the trumpet. This passed through the slits and filled the spaces among the stacked pipes, acting as a support and preventing the pipes from warping during firing. The conical cap was then placed on the saggar and fixed with a clay strapping. The whole saggar was then plastered with this clay and put in the kiln (FIG 18,dd-gg); covering the saggar in this manner enabled one to reuse it four or five times. (A depiction of a saggar on a C19 maker's signboard (Helbers and Goedewaagen 1942: pl XI upper) shows what appears to be a slightly different version, the sides of the pot curving out to the wider top which has vertical sides, and the cap having a conical top but vertical sides which fit over the saggar top - this would be a logical improvement to make over the shape illustrated by Duhamel du Monceau as the cap would be less liable to slip off and break the pipestems.)

The production of clay pipes at Gouda is depicted in a series of engravings, all clearly based on each other or on a lost prototype, illustrated by Helbers and Goedewaagen (1942: pl XV, pl XVIII btm, p.90 Fig 49, p.129 Fig 95 and p.161 Fig 143). The earliest depictions are two of 1735, one a silver mortuary plaque (pl XV) and the other a woodcut (p.129). A silver tobacco-box of 1827 shows the same scene (pl XVIII, btm), and it is again recorded - this time with two of the workers in reversed positions - in an undated woodcut (p.90).

The scene depicted (FIG 19; the 1735 woodcut) shows five workers each performing a certain part of the manufacturing process. Behind a long table stand two men, the one on the left apparently in the act of lifting a strip of beaten clay (cf FIG 12,o) and the one on the right in the process of wiring the pipe - the tray used to hold the pipe during this operation is the curved object directly below the man's left hand. (In the undated woodcut illustrated on p.90 the position of these two men is reversed.) At the extreme left, seated, a man is making the rolls on one end of the table - the prepared clay appears to be in small lumps in a wooden tub beside him on the floor and the finished rolls appear to be placed in rectangular trays in simple parallel lines. Similar trayloads lie in front of the man wiring the pipes. To this man's left, hanging on the wall, is a large, probably leather, bottle - if this holds the oil for lubricating the wire and mould, as seems likely, then the undated woodcut noted above with this worker's position reversed vis-a-vis the person beating the clay must be an inaccurate copy, for it depicts this bottle in the same position as do the other illustrations and thus on the opposite side of the room from the moulder who would be using the oil. The mortuary plaque shows no bottle at all. No mould is shown in any of the illustrations. A small table is set against the front of the long table at the right of the picture, at right angles, and here two women are depicted finishing the pipes. The woman on the right is trimming the bowl of a pipe with what appears to be an ordinary knife blade, the woman on her right is holding a pipe in both hands presumably polishing it with a cloth. All depictions except the 1735 woodcut show trays of presumably finished pipes on the floor; the 1735 silver engraving and the undated woodcut depict two objects on the floor in front of the table, one a rectangular box and the other a small pot-like object, but it is not known what these were nor whether they were associated with the manufacture of pipes. All illustrations except the 1735 silver engraving depict a dog standing in the centre foreground, a homely touch possibly deliberately omitted from the silver funerary plaque; the same three illustrations also depict, behind the man making the rolls, a large barrel in which the ordinary-quality fired pipes were carried to be sold (best-quality pipes were carried in much smaller wicker baskets (Helbers and Goedewaagen 1942: 17, cf p.91 and pl XVI[6]).) A barrel and a basket of pipes were attached to two poles and carried by two men in the manner of a sedan chair; harnesses were attached to the ends of the poles to slip over the shoulders to make carrying easier (FIG 17; illustration, essentially the same as Helbers and Goedewaagen 1942: pl XVI, from Terstraten [1968]: 18).

Savary des Bruslons in his Dictionnaire universel..., where the entry on pipes is probably basically early C18 in date, indicates that Gouda pipes were packed with straw or buckwheat husks in fir chests ranging in capacity from 4 to 24 gross, the 4-gross size being said to give fewer breakages (Savary des Bruslons 1759-65 ed: IV, cols 199-200). Presumably this is referring to their method of shipment to non-local customers and for export.

According to Duhamel du Monceau's source (1771: 7) Gouda pipemakers obtained their clays from the Liège area - which must mean Andenne - and the Cologne region. As noted in Section IX below, the cliffs along the Meuse for the ca.25 miles upstream from Liège are one continuous series of clay mines, and the Cologne area had important clay deposits which were being exploited at least from medieval times for the stonewares of that region. Duhamel du Monceau also quotes, but appears to doubt (cf remarks on his preceding page), another source indicating that clay from the Antwerp area was very important to Gouda manufacturers (this may be the Roosendaal clay noted in 1644 (Douwes 1964: 365; see also Section IX below), and as noted in 3: III there is apparently a pipemaker still (1969) working at Schoten ca.4-1/2 miles NE of Antwerp).

Duhamel du Monceau (loc. cit.) notes there were merchants in Gouda who supplied the pipemakers with clay, and ca.1783 a Charles Wouters, brother of an Andenne faience-maker, lived in Gouda and acted as an agent for Andenne clay. At that time Gouda and Delft delftware (faience) factories used large amounts of Andenne clay and at the beginning of the C19 the Gouda pipe firms of Stomman and Prince used enormous quantities of Andenne clay (Javaux 1935: 4 and n.3), and according to Javaux the Dutch were still using Andenne clays when he was writing.

Brongniart (1854 ed: II, 180), summarizing Duhamel du Monceau's remarks on the sources of clays for various pipemaking centres and apparently adding some information of his own, says the Dutch used clays from Devres in NE France, Hautrage in southern Belgium, Andenne, and Vallendar near Coblenz. This last suggests that the Dutch were using Westerwald clays.

The unpublished records of the Gouda pipemakers' guild rediscovered by this writer indicate that in 1789 Gouda clay came from "the Namur district" not, as one might have supposed, directly down the Meuse, but by road to Louvain (E of Brussels and ca.30 miles from Andenne) and then by water through Brabant to the Scheldt and presumably through Antwerp. (Curiously, the trade-pattern of pottery made at Andenne and nearby centres between the end of the C11 and the second half of the C14 as evidenced by finds indicate the same route to the Schelde and a marked lack of material along the lower Meuse (Borremans and Warginaire 1966: 80 fig 34).)

The same account - one of a series in the guild records - also mentions clay from the Electorate of Trier (which included part of the Westerwald - see 3: III) and acknowledges it is used at Gouda. However, the Trier clay used by Gouda pipemakers was not obtained directly from the Electorate but from Cologne merchants. (The question of Trier clay, called in the Gouda guild records "Mogendorfen" clay - presumably from Mogendorf, ca.6 miles NE of Höhr-Grenzhausen - had been raised because the Elector, concerned at high Dutch taxes imposed on Höhr pipes in 1788, was threatening to prevent Dutch pipemakers obtaining Trier clay: the Gouda view was that as they obtained the clay only through middlemen the Elector could not prevent them obtaining the clay without banning its export entirely and that in any case it was of poor quality and little of it was used, and it could be done without. The outcome of this argument is not given, but the guild recommended standing firm, and as some problems are noted at Gouda in 1797 arising from a lack of Rhine clay and much later - in 1818 - it is recorded (Pholien 1906: 144-5) that a pipemaker at Andernach near Coblenz moved to Chokier near Liège in Belgium because of tariffs keeping his pipes out of The Netherlands it seems likely the Dutch taxes were continued.) The guild records also note, however, that in 1788 they had no Andenne clay and that in 1790 "Brabant" clay was scarce. Presumably this latter refers to the Andenne clay which was being shipped through Brabant (see above) and not to clays dug in that province - the context indicates this clay was vital to Gouda production, which suggests Gouda pipemakers had been over-hasty in dismissing Westerwald clay as of no importance.

At present the Van der Want firm get their clay from "the Liège area" though, because it is obtained through middlemen, they do not know the exact source. As noted in 2: IX there is considerable confusion about Andenne clay, for the only surviving Andenne pipemaker (Section III below) says he can no longer obtain suitable Andenne clay and now gets his from Germany (probably the Westerwald, though again the actual source is unknown.)

In unpublished records of the pipemakers' guild of Gouda there is an interesting account dated 1760 of an action by the city potters' guild against the pipemakers. The potters fired, but did not make, the pipemakers' saggars, and successfully petitioned for higher remuneration because the pipemakers "are forced to put sand and dust [from ground-up pipeclay] in their saggars because they must make the pipes longer and straighter" which made the saggars so heavy that they could not be handled by two men and increased the amount of peat needed to fire the saggars from 60 to 100 or 110 barrels. (Prior to 1747 apparently the pipemakers had to have their pipes fired by the potters, but after that date this appears to have been optional.) It is clear from the petition and the reply by the pipemakers, who acknowledge they are using sand and ground-up pipeclay, that these saggars were used only for firing the long pipes.

This reference, with its interesting example of trade union-like demarcation agreements about saggar-making and -firing, is presumably to the ground-up fired pipeclay (*gruys*) noted 11 years later by Duhamel du Monceau as being put into the saggars through a *trompette* to hold the pipes and help prevent distortion during firing. If so, it suggests this use of *gruys* was only being introduced ca.1760, the date of the complaint.

Duhamel du Monceau's informant noted that the clay used for the saggars was a heavy clay from Friesland, on the NE side of the Zuider Zee (now the IJsselmeer). The clay thus had to be brought at least 80 miles - no doubt by water - to Gouda.

According to Duhamel du Monceau's informant, all the Gouda kilns were built on the same principle. This was a very sophisticated version, beehive-shaped, of the large kilns used in northern France. Its major difference lay in its series of draft openings, both in the roof and beneath the kiln. The saggars were placed in the chamber and other saggars placed on top of them until the kiln was filled: the entrance was then bricked up and barred (the kiln itself had similar iron bands) and the fires started.

The Gouda kilns were fired with peat, starting at a low temperature and gradually increasing it, for a period of 50 or 60 hrs. Eventually, Duhamel du Monceau (or rather his correspondent) says, the entire kiln became red hot, even becoming transparent round the door. If the kiln did indeed become red-hot it must have had quite thin walls - an incandescent furnace wall does give the impression of transparency, but in reality there is no transparency (Lunny *in litt.* 18 June 1968). The kiln in question was built of a local heavy clay from the banks of the Hollandse IJssel river which flows through Gouda and its bricks were pointed not with mortar but with the same clay - the kiln described by Duhamel du Monceau's informant was said to have been in use for seven years. No temperatures are given - Brongers (1964b: 40), perhaps talking of a later period, says the pipes were fired for 24 hrs and to a temperature of 1,000°C. Lunny (*in litt.* 18 June 1968) says that temperatures well in excess of 1,500°C have been reached with peat by using preheated combustion air, but that otherwise it would not be able to obtain temperatures much over 1,000°C. It is likely, therefore, that the remarks about red-hot kiln walls are an exaggeration.

The secret of the firing process lay, according to the Gouda makers, in the use of peat, as wood would have heated the kiln too suddenly and caused shattering of the pipes - for this reason Friesland peat was preferred to local Holland peat because it burnt less quickly. When it was judged that the pipes were sufficiently fired, the furnace was allowed to go out and the kiln to cool.

To give them their varnished appearance, which was the hallmark of Dutch pipes and which no imitators were able to do so well, the pipes, while still warm, were dipped in a prepared mixture and rubbed with a piece of flannel. The composition of the mixture was a secret, but it was said that a certain quantity of Spanish soap and white wax was put in boiling water and the mixture allowed to cool for half an hour. When cold, it was poured into a tub and the pipes dipped in it.

The most common Gouda pipes were those with straight stems about 18 *pouces* long; they were sold for two florins or 40 Dutch *sols* a gross. Those with stems 28 or 30 *pouces* long sold for four *florins*. Each gross included one pipe called by the Dutch the newly-weds' pipe - this was a pipe with elaborate decoration in relief.

The insistence on using peat - and a certain kind of peat - for firing the kilns seems likely to be a trade tradition, based originally on the lack of coal in The Netherlands and the scarcity of wood. The potters' guild in Gouda, in refuting the pipemakers' complaints that the use of the wrong type of peat was ruining their pipes, claimed that the type of peat used made no difference to the product provided it was correctly used; this, however, begs the question to some extent because the pipemakers had obviously evolved a very rigid manufacturing tradition and while no doubt other fuels could have been equally successfully used they would have necessitated the modification of the pipemakers' mystery. As other countries used wood or coal successfully, the Dutch insistence on peat must be a reflection of their desire not to change their traditional methods evolved over the preceding century and a half. To take only one point: their firing took 50 or 60 hrs, something like seven times the most frequently-recorded times in other centres and more than double the next longest time recorded. Presumably this was because peat was used at Gouda whereas wood or coal was used in the other centres. Clearly, any change in fuel would have necessitated a complete and costly series of experiments to find the new optimum firing period and the amount of fuel needed.

The modern commercial use of peat has been pioneered by the Irish Peat Board, to whose Chief Fuel Technologist, F. Lunny, I am indebted for considerable help. It appears that peat has advantages for kiln firing compared to other fuels. First, it produces an extremely long flame and at the same time has a lower firebed temperature than other fuels: these points reduce the danger of overfiring material near the fuel and give a more even distribution of heat. Secondly, peat has a low sulphur content, which removes the danger of the wares blooming in the drying stage which otherwise has to be obviated by drying with preheated clean air (Lunny *in litt.* 4 June 1968).

Disadvantages are its calorific value, which is about half that of steam coal, and its density, also about half that of coal, though the modern use of mechanical stokers for peat-fired furnaces has resulted in almost twice the rate of heat-output from peat compared to coal (Lunny n.d.[1]; Lunny n.d.[2]). When a peat-fired boiler was installed at W. and R. Jacob's biscuit factory in Dublin it was found that the different characteristics of peat as opposed to fuel oil resulted in a combustion-chamber temperature increase from ca.650°C to ca.870°C - the reason for this was the comparatively short flame given by the oil (Anonymous 1961: 5th page).

Two characteristics of peat which could certainly have affected an attempt to change to another fuel are the low temperature at which self-supporting oxidation begins, and the high temperature needed to ignite its volatiles. The former is between 150°C and 210°C, probably the lowest of all commercial fuels; the latter is difficult to estimate and varies according to the amount of moisture in the peat, but is not less than 700°C. It is thus possible to burn peat entirely to ash without releasing any of the heat in the volatiles (Lunny n.d.[1]: 4-5). Another characteristic of peat, allied to these, is that it will burn with a very small supply of air: this might make it easier to use in a primitive kiln, but because of its long flame it would be desirable from the point of efficiency to have a good supply of air and sophisticated flues (Lunny *in litt*. 4 and 18 June 1968).

There is always an intense craft conservatism, in many ways a real safeguard when the science and thus the significance or non-significance of each part of the process is not understood, which decrees that the prescribed actions shall be followed. Talking of the wheelwright's trade at Farnham in Surrey as late as 1884, Sturt noted that the workers "possibly (and properly) exaggerated the respect for good workmanship and material" and that in the workman was "stored all the local lore of what good wheelwright's work should be like" (Sturt 1923: 53, 54, 1963 ed). Asserting the superiority of their product in 1785, at a time when the Gouda industry had seriously declined largely because of hostile foreign tariffs (see: II), Gouda pipemakers maintained that nowhere could a factory be moved and still produce pipes of Gouda quality because nowhere could a factory be moved and still produce pipes of Gouda quality because nowhere outside Gouda could "suitable air, material, kilns, or fuels" be found (quoted from unpublished Gouda guild records) - clearly, Gouda pipes, like Scotch whisky, could not be successfully copied, the very air being cited as helping to produce superior pipes. In 1818 Gouda pipemakers claimed that smokers could break three other pipes to one Gouda pipe and that Gouda pipes could be cleaned by refiring three or four times as often as others (unpublished Gouda guild records).

If, as Gouda pipemakers claimed, the use of other fuels would have resulted in too sharp a rise in temperature and a shattering of pipes (which would agree with their use of a slow-burning fuel, and the length of time they took) it is difficult to believe that they could not have modified their methods - for example, increased the time the moulded pipes were sun- or air-dried ("stoving" as it is called in Britain) - to prevent shattering. Indeed, the same unpublished documents note in 1776 (only 16 years later) and on into the 1790s that the pipemakers successfully petitioned for a lessening in the duties they had to pay on the coal they used, which indicates by that time at least the use of coal must have been known.

Brongniart (1854 ed: II, 185), noting that Duhamel du Monceau had mentioned in 1771 peat-firing and its taking 50 to 60 hrs, observed that when he visited Gouda in 1835 coal was being used. He gives no time for firing with coal, but commenting with surprise on the figures given for peat-firing, said that wood-firing took between 6-7 hrs and 14-16 depending on the size of the kiln. He noted that the Gouda makers held that wood fired the pipes too quickly and caused many breakages. The guild documents, in emphasizing in 1785 that Friesland peat had always been used for firing pipes, also complain that the potters who fired the pipermakers' saggars of pipes were using a black peat (probably the Holland peat referred to in the 1760 reference earlier) which was ruining their pipes because it produced far too much heat, that the heat was unevenly distributed, and that the peat was fit only to be used in brick kilns which needed, and could take, higher temperatures. (Parenthetically, the idea that Gouda air helped make Gouda pipes the best in the world should not be dismissed out of hand as absurd - local climate may have assisted in keeping the clay at an optimum dampness for good moulding just as it is said to have helped the Lancashire cotton industry by making cotton damp enough to be spun without breaking.)

However, the firing process is crucial to the whole pipemaking mystery. A revealing sidelight on the difficulties of achieving a satisfactory product occurs in Exeter in 1654, when on 12 August an Exeter pipemaker, Edward Tribble, deposed at the City Sessions that Diana Cross, suspected of being a witch, "called for fire at his house, which he gave her, and for one month afterwards he could not make his pipes to his satisfaction", they being either over- or under done. Further, it was averred, she had cast her evil eye on a boy in Tribble's employ - doubtless an apprentice - and "affirmed" he would never be well, after which the boy "grew into a distracted condition, and was much consumed and pyned away in body" (Rippon 1917: 115; Jewitt 1878: II, 457).[8]

By the middle of the next century witchcraft was no longer used to explain the difficulties of obtaining good ceramic bodies, but workers still had their problems. When the Delftfield pottery in Glasgow was started in 1748 it ran into a whole series of difficulties before producing its first satisfactory products. The founders had been assured that local clay from the lands of one of their number was suitable for the production of tin-glazed earthenware, but this proved to be untrue. Clay was then imported from Carrickfergus, Northern Ireland, but the first biscuit firing was destroyed when the saggars collapsed and blocked the flues (the wood initially used as fuel burned too rapidly and coal, the use of which at this time for firing pottery seems to have been almost unknown, was said to have been added). The second biscuit firing was successful, but the glaze firing was unsuccessful. This was initially blamed on the soft grinding-stones used to prepare the glaze depositing refractories in the mix, but subsequent investigation proved that the proportions of the ingredients for the mix had been wrong (Fleming 1923: 82-5; Archer 1966: 16-17). These and other problems there (cf Archer 1971: 244-6) indicate sucessful production was still founded on a trial-and-error basis. Indeed, Rhodes observes that even today "So many variables are involved in the construction and operation of any kiln that experience, trial and error, and experimentation, rather than a fixed design, must be relied upon for success" - kilns seem to mellow with age, so that after a dozen or more firings most problems will probably disappear (Rhodes 1969: viii, 140). Examples of this trial-and-error approach, together with the use of inherited tradition, by small traditional potteries in this century are recounted by Fishley Holland of Clevedon (Holland 1958: passim).

The granting of the second charter to the Westminster pipemakers' guild in 1634 was to four individuals some of whom had discovered how to fire pipes with "seacole or pittcole" - that is, coal in its modern sense; until the C17 "coal" meant charcoal - instead of wood and who in return for the monopoly in pipemaking were to teach guild members how to fire their pipes with coal. On the other hand, the first charter - that of 1619, revoked in 1621 - had specifically said that members could "burne and bake with all or any sort of fewell fire or fires whatsoever" their pipes (cf Robinson and Spence 1937: 202; Oswald 1960a: 42 n.5; for details of the two charters see 3: I). The permission given in 1619 to use any sort of fuel must represent a considerable privilege, for only four years previously the glass industry of the Weald had been extinguished by a prohibition on their use of wood as a fuel (G.H. Kenyon 1967: 49) and as early as 1565 the Lake District iron bloomeries had been suppressed for similar reasons (Marshall and Davies-Shiel 1969: 161).

The widespread depredation of English woodland caused by ever-increasing quantities of wood needed as fuel in pottery, glass, and metal production was a matter of increasing concern from the later C16 onwards (cf Knowles 1927: 309; G.H. Kenyon 1967: 48). The cost of wood rose extremely rapidly from ca.1540 - a load which had cost 3s4d in 1536 in Rutlandshire cost 25s in 1586 (Nef 1932: I, 158). In 1697 it was decreed that at Bury St Edmunds "no brewers, dyers or others using much fuel in their trades" were "to burn any wood or charcoal, but only seacoal, sedge, straw, or other such things" because of lack of wood and charcoal (Willan 1938: 62, 1967 ed). It is therefore not surprising that the promised use of coal appears to have been the chief reason for granting the second charter. As late as 1663 some London-area pipemakers appear to have still been using wood, for in that year the Westminster guild received certain favours in return for again promising to use only coal for firing pipes. The 1671 inventory of a deceased Spalding pipemaker, John Fox (P.K. Wells 1972: 14), included 5,000 billets of firewood, three loads of wood, and 2,000 turves, presumably fuel for his kiln, suggesting - interestingly, in view of the strong beliefs held by Gouda pipemakers (noted above) as to the correct type of fuel they required - that in fact no insurmountable difficulties presented themselves when different fuels were used. This impression is reinforced by another deceased Lincolnshire pipemaker's inventory, this time of a Boston maker, James Harford, and dated 1676 which included wood and "coles" (P.K. Wells 1972: 13) and would again suggest - provided "coles" here refers to coal in the modern sense, which is quite possible as Boston would have been able to take advantage of the Newcastle-London coal-trade - that different fuels could be used without incurring major problems. Coal appears to have been used by a Spalding maker in the following century, for the inventory of Isaac Bilby's assets, taken in 1728, includes a "parcell of coals" valued at £3 (abstract of inventory seen November 1973; I am extremely grateful to Peter Wells for showing me this material). The inventory of Matthew Heblethwight of Lincoln, compiled 1729/30, suggests wood may have continued to be used as late as that time, however, for in a fairly detailed listing the only possible fuel which appears is "Wood in ye yard", valued at 10s (P.K. Wells files). Certainly, the inventory of a deceased Great Yarmouth maker, William Harpley, dated 1674/5, noted £2 10 0-worth of "Billett", presumably firewood; however, a similar inventory of 1691/2, also from Norfolk, for a deceased Downham Market maker, William Case, noted "a parcell of turfs" valued at 6s in his stable, which was presumably fuel for his kiln (Oswald *in litt.* 11 October 1972; I am extremely grateful to H. Oak-Rhind for permission to quote these Norfolk extracts, the Great Yarmouth inventory coming from the Norwich Archdeaconry Court Inventories and the Downham Market inventory from the Norwich Consistory Court Inventories).

In 1610 a patent was granted for a method of using coal in various industrial processes, including metal- and glass-working; and another was granted the following year specifically concerning glass-making (*VCH Surrey* II, 299-300). In 1615, simultaneously with the prohibition on using wood as a fuel, all previous patents for glass-making were revoked and a new one issued for its manufacture with coal as the fuel. One of the patentees was credited with the introduction of covering the crucibles, which enabled coal to be successfully used (Knowles 1927: 345). Nef (1932: I, 218-9) claims that the closing of the crucibles to prevent contamination from gases was the most important factor in adapting to coal; but control of the firing itself must have been just as important. Nef himself (1932: I, 218) quotes from a source of 1612 which says that "by a wind furnace" glass could now be made as well by coal as by wood-firing. The "wind furnace" must refer to the regulation of the draught for the fire, and indicates that the chief technical difficulty in changing from wood to coal - that of controlling the fire - had been mastered.

The conversions necessary for this were underground flues, a grate to which the flues connected, and ledges on which the crucibles were placed (G.H. Kenyon 1967: 48, 216 figs Y and Z, 216 and 217). Another problem which had to be mastered was that coal has an appreciably higher calorific value than wood - good coal has a value of ca.12,000 BTU per lb as opposed to a value for wood (though as noted below, there is considerable variation among different types of wood) of ca.8,000 BTU per lb (Cardew 1969: 176). Moreover, when firing ceramics with wood or other vegetable fuel it is necessary to have a combustion area where the incoming air can reach a uniform temperature before entering the firing-chamber, as otherwise the air is able to rush through the loosely-packed fuel and into the kiln as a mixture of long flames and relatively cool draughts, which could shatter the wares waiting to be fired; with coal or peat, however, the air passes slowly through a mass of glowing ashes which evenly heats it without the necessity of a combustion area (Brears 1971: 137-8). Further, wood has to be fed in at the proper rate: if not enough is added the temperature inside the kiln may drop precipitously, while if too much is put on the fire may be temporarily smothered, again causing a loss of heat (Rhodes 1969: 68). On the other hand, a great merit of wood is its long flame, and in fact wood, though bulky to store and involving more labour in its use than other fuels, is an excellent fuel for high-temperature kilns, being widely used in Europe well into this century for firing hard porcelain to temperatures up to and beyond 1,400°C (Cardew 1969: 176).

Just as the Gouda pipemakers preferred a certain type of peat, so medieval glass-makers preferred beechwood to other kinds of wood, probably because it yielded a clearer and hotter fire than other woods - in Classical times glassworkers favoured tamarisk wood (Knowles 1927: 243). One C12 writer maintained that beechwood "thoroughly dried in smoke" should be used by glassworkers (Knowles loc. cit.): green wood would have caused smoke and given a less hot flame (G.H. Kenyon 1967: 45; Rhodes 1969: 66 and 88), and Hayes (1970: 30) quotes Agricola in his De Re Metallica of 1556 observing that "Dry wood was vital because working close to a furnace with no chimney would be impossible with the smoke of green wood". At the glasshouse-site excavated by Hayes, in Rosedale in Yorkshire, beechwood was apparently not available and oak was probably used, oak being the second-best choice (opinion of D. Hogan of Pilkington Glass Museum quoted in Hayes loc. cit.). Observations (quoted in Knowles 1927: 345) indicate that during a year's operation a glass-house consumed almost double the amount in weight of dry beechwood compared to the amount of coal that would have been used but that the heating effect of the wood was over half as much again compared to the coal. Beechwood was used in France by glassmakers from medieval times (G.H. Kenyon 1967: 46) until the C19 (Knowles 1927: 343 and 345) but though glass was being made in north France in medieval times the pipemakers in this area were using deal in Duhamel du Monceau's time, as already noted, and not beechwood. A reference in the Canterbury Tales claims beechwood was a superior fuel in alchemy (Knowles loc. cit.); and it is still used in the Westerwald pipe industry in Germany (Section VI below) - where it has to be imported - for the final hour or so of the firing. However, the references to deal, which is softwood, being used by pipemakers in north France and to tamarisk wood, also a softwood, being preferred by Classical glassmakers is interesting, because although there is a marked difference between the total heat released by two comparable amounts of softwood and hardwood - a cord of air-dried aspen, a softwood, produces 12,300,000 BTUs while a cord of air-dried hickory, a hardwood, produces virtually double that amount, 24,200,000 BTUs - the open-grained structure of softwoods is preferred for kiln firing because the heat is released at a faster rate, an important factor in raising the temperature of a kiln. Thus pine and fir (i.e. deal), hemlock, or spruce make excellent kiln fuel (Rhodes 1969: 61, 68 fig 67).

Independent of the fuel used, there is the problem of heat loss. Norton (1952: 136, 138 fig 16-2; the figures are repeated in Rhodes 1969: 154, but misleadingly) indicates that in a typical periodic kiln (i.e. one used for single firings, such as the ones discussed here, as opposed to continuous-chamber kilns or tunnel kilns) for firing refractory products only 20% of the heat is used for firing the ware. All the heat is, of course, lost eventually, directly or indirectly, but the various sources of loss run from 6% for incomplete combustion of the fuel up to 36% for the flue gases. For the more primitive kilns, such as must have been used by most pipemakers, at any rate prior to the C19, the amount of heat used in heating the pipes was probably appreciably less than even 20 per cent.

From all this, therefore, it is clear that the firing process was the most vital part of the whole operation, and it is quite understandable that once a proved pattern had been evolved round a certain type of fuel, makers would be reluctant to experiment with other fuels, particularly as they could only do so by trial and error.

As clay pipes are still manufactured in Gouda, it is possible to make a comparison between the modern production methods and those described in such detail by Duhamel du Monceau. In April 1969 the writer visited the Zenith Plateelbakkerij en Pijpenfabriek owned by the Van der Want family who have made pipes since 1749, and found the present techniques quite similar to those described two centuries earlier (the former have been more briefly described in I. Walker 1971b). The present two workers [9] - twins, then 18 years old - had been taught by their grandfather who was 91 in 1968 and had made pipes for the firm for 60 years, and another former employee who had made pipes for 40 years. The present method is thus the better part of a century old at least.

The clay used, whether white- or red-firing, comes from the Liège area of Belgium. (Unfortunately, it was not possible to find precisely where the clay was mined, and as noted subsequently in the section dealing with manufacture at Andenne and that on the clays used in pipemaking, there is considerable confusion regarding Andenne clay.) Alternate layers of scrables or schrobbles (spew) and fresh clay are laid down to form the soken (pill), which is then mixed by a pug-mill. This clay is delivered to the pipemaker in blocks, and from this a muis (nip - literally, mouse; also, the heel of the hand) of the correct amount for the size of the rol (roll) is taken. In the attenuated version of the industry which now exists, all the work from the rolling to the trimming is done by the one person; formerly the person making the rolls was known as a rolder (the equivalent English term would presumably be roller, but as noted previously this term has probably been lost, for it does not appear to be known in the British industry).

The roll is started with one hand, then both are used (FIG 21) - this differs from the present British method, (Section VII below), where each hand makes a roll simultaneously. This distinctive technique is depicted in two engravings of 1735 (Helbers and Goedewaagen 1942: pl XV and p.129 fig 95, cf also p.90 fig 49, p.161 fig 143, and pl XVIII btm; p. 129 fig 95=FIG 19 above - in each case the rolder is on th extreme left) as noted earlier, and must thus be at least two and a half centuries old. The rolls are made on a bench called a rollenbank and placed three deep, 18 together, in a bosje rollen (literally, roll-bunch) on a paddle-shaped rollenplank (variously called a "bench", a "dozening board", or a "bunch board" in Britain, though these are simple rectangular boards and not paddle-shaped). The three rows of rolls comprise seven, six, and five rolls respectively (FIG 22); the paddle end of the board holds the heads of the rolls, which take up more room than do the narrow stems (FIG 21). The stem ends are cut off with a mesje (literally, a small knife or blade) or nipped off with the fingers, and the stems set aside to dry to the right consistency for the next stage of the process.

This stage is the wiring and moulding. The roll is laid in a small turnable trough on a stand called a *gootje* (literally, little gutter) (FIGS 23,24). The end of the *weijer* (wire) (FIG 25), which is blunted, is dipped in a dish of oil and the roll pulled over it to a point just short of the head of the roll. The head of the roll is then bent up and its end broken off. The bipartite bronze *vorm* (mould) (FIGS 25,26) is then cleaned of pieces of clay left from the previous moulding and oiled from an oily rag (not from the dish of oil, which is used only for the wire and the *stopper*) with the fingers. The wired roll is then placed in the mould (FIG 27), which is closed and placed in the *schroef* (chest - literally, screw). A wad of paper cushions the mould in the press - this is called a "slot" in English, though no special Dutch term is known for it. The chest is closed by a handle, which is held tight with the knee. Simultaneously, the thumb is pressed into the mouth of the mould (FIG 28). The *stopper* (same word in English) (FIGS 23,25) is then dipped in the dish of oil and rammed into the muld mouth by hand with a twisting motion, several times, the excess clay being forced out the mouth (FIG 29). (This part of the process is simpler than that described by Duhamel du Monceau, where an index finger was inserted into the mouth of the mould and the clay from the bottom smeared round the mould wall before the stopper was used; in all probability this change was to effect a higher output and is a concession to mass-production.) The excess clay forced out the top of the mould is called the *directie*, or *diereksie* in the local Gouda dialect (the word literally means board or management; the origin of its use in this context is uncertain).[10] This is left on until the final trimming process. Dutch moulds, unlike British ones, have no slot near the top of the bowl into which a knife is pushed to remove the excess clay - the Dutch mould simply carries on an inch or so beyond the top of the bowl outlined in the mould.

Following the use of the stopper, the wire is pushed home to complete the bore, this being checked by looking inside the newly-formed bowl. The piece of clay pushed into the bowl by the wire and known in Britain as the "dottle" or "pep" is not removed, nor is any special term known for it. (This is a departure from Duhamel du Monceau's description, again probably a concession to higher output.) The mould is then removed from the chest and the pipe from the mould, a finger often being put in the bowl to assist in this latter (FIG 30).

When the industry was larger and there were workers concentrating on particular parts of the manufacturing process, the person doing the moulding - the "moulder" in English - was called the *kaster*. However, as Duhamel du Monceau also indicates, the *kaster* did part of the trimming as well, for part of this process is done immediately the pipe is taken from the mould, whereas in Britain the pipe is set aside to dry to a certain consistency before any trimming. At present the gross excess is taken off the stem with the fingers; the *schenkertje* (literally, little shanker) (FIG 31), an implement which has a blade set in a wooden handle and a wire with a semi-circular bend towards its end fitted into one end of the handle, is used to trim off the rest of the excess stem clay. In this particular operation only the curved wire of the *schenkertje* is used (FIG 32). Following this the fingers are again used, this time to smooth the stem. The blade of the *schenkertje* is then used to cut off the end of the stem. All this time the wire is used to hold the pipe - the *schenkertje* blade cuts the stem round the wire. The wire is now removed and the pipes stacked in trays to dry to the correct consistency for further trimming. (For very long pipes a schenker (shanker) was used to trim the stem. This differs from the schenkertje in being much larger and in not having a blade set in the handle. Why a tool differing in these respects from the standard piece of equipment should have been reserved for very long pipes is not known, and in fact it is no longer used.)

When the pipes are leather-hard the directie is removed with an ordinary paring-knife, the stem being rested on the shoulder during this process (FIG 33). Formerly, this was done by women known as tremmers or tremsters (trimmers). The pipe is then held vertically by the bowl and the mould-lines on the bowl pared off with the same knife (FIG 34) - formerly the bowl was smoothed by a smoier (smoother, though the English implement is simpler than the Dutch) (FIG 26), a tool similar to a schenker but with a sickle-shaped piece of flat-edged metal, but this is not now used. Finally, the rim of the bowl is smoothed with the botter (button) (FIGS 25,26) which is fitted over the bowl and turned (FIG 35).

(A comparison between this account of the trimming and that of Duhamel du Monceau again shows a streamlining of the process in the interests of mass-production. The initial trimming by the kaster with the schenkertje remains unaltered, but the work of the tremster has been considerably curtailed. Instead of the specialized knife with the semi-circular notch on the blade to trim the stem, the denticulation on the back of the blade to mark the bowl rim, and the hook on the other end of the handle to remove the pep or dottle, an ordinary kitchen paring-knife is used - the dottle, as noted previously, is no longer removed, and the denticulation no longer applied. The trimming and smoothing formerly effected to the stem by the notched blade of the knife and to the bowl by the smoier have likewise been dropped. The Van der Want factory still has the implement with which the name and place of work were marked round the stem - a small, thin, flat piece of metal with the lettering stamped on from behind to give the raised inscription necessary to impart the impressed marking - but they do not now use this, using instead a printed paper sticker with white lettering on a blue background stuck spirally round the stem at its point of balance (FIG 36). This form of marking appears to have become standard latterly among Dutch pipemakers (cf also its use in Flemish Belgium in the following section).)

The pipes are then further dried before firing. This process, known as "stoving" in English, is called drogen (to dry) or te drogen zetten (put to dry). Pipes which are to have curved stems are placed in the grooves of a curved corrugated zinc board with bowls hanging downwards alternately over each edge. The stem ends are put into metal hoops set alternately at the ends of the grooves (FIG 37). Straight-stemmed pipes are dried in grooved wooden trays - in one half of the tray the bowls are at one end, in the other half at the other end, in two staggered rows, each groove being progressively angled to the previous to accommodate the bowl (FIG 38). This ensures maximum usage of space. Pipes made of poorer clay are dried with a naald (wire - literally, needle) in their stem to prevent warping when drying.

If the pipe is to be burnished this is done with a glaaspin, a conical "pencil" of agate set in a handle; the person doing this, when it was a specialized part of the finishing, was a glaaster. In former times, after firing, the pipes were dipped in zeepsop (soap solution) on being removed from the kiln and polished with a snollap, this process being called snollen. (Lap in snollap is a cloth; the meaning of the snol- root is unknown. Snollen is a slang word for women of dubious repute and is also used, though rarely, to indicate endearment; it also occurs in the expression in de snol meaning mixed up or tangled up. In the southern Dutch-speaking area it is also a verb meaning to sniff or snuffle.)

(The description of these finishing techniques corresponds to that of Duhamel du Monceau; the abandoning of the polishing is yet another concession to speed and expense of production.)

A proclamation by the Gouda magistrates in 1750 forbidding the export of pipemaking equipment to other pipemaking centres lists vormen (moulds), pyp-potten (saggars), glass-steenen (glazing-stones, the modern glaaspinnen), trompetten ("trumpets" - the special support for the pipes in the saggars), and gruys. This last term literally means "grit" (modern Dutch gruis) and presumably refers to the finely-ground and sieved fired pipeclay poured into the saggar through the trumpet to bed down the pipes before firing.

Firing was formerly done in pijpenpotten (saggars - literally, pipe-pots, though the more general term for saggar, kapsel, is also known). These were similar to those described by Duhamel du Monceau, fireclay containers on small feet, basically cylindrical in shape but wider at the mouth than at the bottom, with a conical top. This part of the process, called "potting" in the British industry, was called het potten in Gouda. Nowadays, however, the pipes are laid on large open fireclay tile stacks (FIG 39) arranged in the manner of shelves one above the other and fired thus in an electric kiln to a temperature of 1,000°C. Both downdraught kilns and bottle kilns were known in the industry, the former having the same sort of baffle - known as a scherm (literally, screen) in Dutch and "bag" in the British industry - on the inside to prevent the direct flame from the fireboxes round the kiln hitting the saggars as have downdraught kilns used by British pipemakers.

For the rapid production of cheap pipes a machine on which the stoppers and wires (two each) are operated by levers is used (FIG 36). This type of machine is the standard method of pipe-production at Andenne and in the Westerwald, Germany; its use is described and illustrated when dealing with the Westerwald industry (see Section IV).

According to Brongers (1964b: 37-8, 29 fig a) the rolls were made by a "moulder" (the word appears in inverted commas): as Brongers's book is in English it is not easy to decide whether "moulder" is a chosen translation or rolder or whether it does represent a Dutch term otherwise unknown to this writer. Certainly Brongers is not confusing the term and function with that of the kaster. If an alternative term for rolder were "moulder", then one might hypothesize an early English term "moulder" for the postulated "roller" and suggest that this term had subsequently been shifted to describe and encompass the work of the person working at the mould, a hypothetical original English term "caster" being dropped.

The rest of Brongers's description (pp38-40) of the manufacturing process follows fairly closely that noted above, though his 1912 illustration (p.39 fig b) shows simple saggars instead of the distinctive ones described by Duhamel du Monceau. Firing was to 1,000°C and lasted 24 hours.

Gouda pipemakers, unlike British pipemakers, still make their own moulds when necessary. A solid version of the pipe, complete with any decoration, is modelled, and from this a plaster mould in two halves is made. Each half is the exact shape, inside and out, including pinions and sockets, that the final metal halves will be (FIG 41) (these are similar to the plaster moulds noted previously in the Musée du Tabac, Bergerac). Each of these halves is then treated as an original model, and bipartite moulds of each half are made. These secondary moulds are fitted together and the final metal pipe-mould halves are cast inside them. These final parts are then trimmed and smoothed and the mould is ready for use.

SECTION III:
METHODS USED IN BELGIUM

Culturally and linguistically, modern Belgium is divided into two, the northern half of the country where Flemish, a dialect of Dutch, is spoken, and the southern half which speaks Walloon, a French dialect.

Two accounts of pipemaking in the Flemish area are known to this writer, one dating from the last quarter of last century and based on information given by a Courtrai (Kortrijk) pipemaker, and a more detailed one describing the method of manufacture at Courtrai apparently fairly recently - as noted in 3: IV, pipemaking continued in Courtrai until 1954 when the firm moved to Kuurne ca.2 miles NE of Courtrai, where it still (1971) continues, employing three workers.

Unfortunately, while in Britain this writer was not aware that pipes were still being made at Kuurne, and so did not visit the factory. The accounts given, however, suggest production was, and no doubt still is unless machinery has been introduced as it has been at Andenne in Walloon Belgium (see below), in the traditional Continental manner. Terminology, as would be expected, basically follows the Dutch.

The description of the process dating from last century first appeared in the 15 January 1891 issue of a journal called *Rond den Heerd* and had been given to the correspondent by a Courtrai pipemaker about ten years previously; it was republished in an issue of *Ons Heem* in 1958 or 1959 (Anonymous n.d.[31]).

The source of the clay used is not stated, but it arrived at Courtrai by boat, presumably up the Lys, which is a tributary of the Scheldt. Shovelfuls of the clay were beaten with a *handboom* (a wooden bar - the term usually refers to, for example, the bar or spoke of a capstan) or ground in a *molen* (mill), and then allowed to soak. Following this preparation the clay was taken to the workshop in square blocks, from which the *rolder* (roller) took a *poote* (nip - literally, paw or leg of an animal) and rolled out the stem on a table, leaving a lump at one end of the roll for the bowl. Fifteen of these rolls made a dozen, and these were then left to dry for one to six weeks, after which they were softened in water.

The bore of the stem was then made with an *ijzerdraad* (wire - literally, iron wire) with a widened end, and the pipe with its wire placed in a bipartite *vorm* (mould). The bowl was then hollowed out with a *stuiker* (stopper - literally, stamper) until the stem bore was reached. The pipe was then taken from the mould and the mould-lines trimmed off with an *ijzerken* (literally, a small piece of iron - the "*-ken*" ending is a Flemish diminutive, the equivalent of the Dutch "*-je*" - and presumably the *schenkertje* of the Gouda industry (see preceding section) and the *smoetter* in the more recent account of the Courtrai pipemaking (see below)) and the wire removed. Following this the pipe was *geschrood* (from the Flemish verb *schroden*, more commonly *schrooien* - to pare, prune, finish off) the excess clay round the top of the bowl removed and the bowl and stem mould-lines smoothed. This part of the finishing - not the trimming with the *ijzerken* -

was called *tremmen* (to trim); and here the tradition is the same as that recorded at Gouda by Duhamel du Monceau and up to recent times, where the *kaster* (moulder) did part of the trimming, then set the pipes aside to dry to a certain consistency before the *tremmer* or *tremster* gave them their final trimming.

The next process was glazing with a smooth stone, and the pipes were then put in small boxes for further drying. Finally, when almost completely dry, they were put in *bakskens* (literally, little trays) "filled with clay", and put in the kiln for firing (this filling with clay is presumably a misunderstood reference to the former Gouda practice noted in the preceding section of bedding the pipes in the saggars with ground-up fired pipeclay; the closing sentences of this account lack clarity, no doubt because the correspondent recounting it ten years after he had been told the account was not familiar with the pipemaking process).

The more recent account of Courtrai pipemaking is rather more detailed, though essentially the same process is described; some of the terminology is different, however (Van Hoonacker 1971: 243-5).

The clay is described as having come "formerly" from the Andenne district; this suggests it no longer comes from there, but no other source is noted. On arrival it was stored in the *aardekot* (clay-shed). As at this stage it was very hard it was first ground in a *broyeur* (this is a straightforward French word, the only one recorded in either of the Flemish accounts of pipemaking, meaning a grinder or grinding-mill; the verb *broyeren*, to grind, has also come into Dutch from French), then put to soak *in a vat*. Following this, the clay was pressed into square blocks, put on planks in a cellar, and covered with packing-paper to stay *neers* (a term not found in dictionaries - from the context it must mean damp or pliable). After a day or two in the cellar the clay was ready for use. In order to prevent mixing, the red clay was used in the "*rode zolder*" (red attic) and the white in the "*witte zolder*" (white attic). (Following his description of the manufacturing process, Van Hoonacker lists (1971: 245-8) the pipe types appearing in a 1920 catalogue and which colours they were available in - white, red, or black. How black pipes were produced is not indicated, but undoubtedly the colour would have been obtained by firing white pipes in saggars full of sawdust as was the case at Forges-les-Eaux near Rouen in France (p.94 above) and Andenne (see below) or possibly in coal-dust as was done at Glasgow (pp144, 147 below).)

The manufacturing process was divided into five parts, the *rollen* (rolling), *kasten* (moulding), *tremmen* (trimming), *glazen* (glazing), and *bakken* (firing).

A *duffel* (again, a term not found in dictionaries, but the equivalent of the *poote* in the earlier account; the "nip" of the British industry) of clay was taken from the block and made into a *rolle* (roll) on a *rolbak* (literally, roll-tray - here the account may be confused, for the term "roll-tray" sounds as though it is more likely to mean the "roll-board" (*rollenplank*) of the Gouda industry, on which the rolls were stacked by the dozen after they had been made - the bench, dozening board, or bunch board of the British industry - than the actual bench on which the rolls were made, which was called a "roll-bench" (*rollenbank*) at Gouda: possibly the terms *rolbak* and *rollenbank* have become confused). A lump was left at one end of the roll for the bowl, and the shape of the roll varied with the type of pipe to be made. After being left to dry for two days, the roll was taken by the *kaster* (moulder) and dipped in a *dopbak* (literally, a dip-trough) of water to soften it again. An oiled iron *weier* (wire) with an expanded end to facilitate withdrawal was inserted through the stem as far as the bowl, and the wired pipe then placed in a bipartite iron *vorm* (mould) and the mould in a *schroefbank* (vice). The bowl was formed with a *stopper* (stopper) which had a heavy iron handle to provide more weight. The wire was then pushed back and forth until it reached the stopper, and following this the pipe was taken out of the mould, the wire removed, and the pipe again set aside to dry for a few days.

The rolling and moulding were done by the men, and in an eight-hour workday they could produce six gross of 180 pipes. The next operation, the trimming, was done by the women. For this operation, another *weier*, thinner than the one used by the moulder, was inserted through the stem to support the pipe. The *toppelken* (the extreme end of the stem; *toppel* is a Flemish term for the top or an extremity, *-ken* is the diminutive) was cut off and the *muts* (the excess clay at the top of the bowl forced out by the stopper, the *directie* or *diereksie* of the Gouda industry - literally, cap) removed. The rim of the bowl was then smoothed off, rounded or flat depending on the type of pipe, with an iron *bottom* (button). The mould-lines on the bowl and stem were then smoothed over with a *smoetter*, a curved piece of iron wire (a tool fulfilling the function of the British smoother, from which the word must come, but evidently here a version of the Gouda *schenkertje*). An iron stamp bearing the firm's name, De Bevere, was worn round the neck by the trimmers and used to impress the name on the stem. With the wire still in place, the pipes were put on wooden trays to further dry for three days. (Subsequently (1971: 248), Van Hoonacker also notes that in the C19 the firm's products had the mark D on the base of the heel and DE BEVERE - KORTRIJK impressed on the stem. In the C20 a paper label was stuck to the stem with "D.B.K. Vraagt het merk De Bevere, Kortrijk (België)" - D.B.K. [presum. standing for De Bevere, Kortrijk] ask for the mark De Bevere, Courtrai, Belgium - printed in white letters on a blue background, a style of labelling latterly adopted at Gouda and still used there (see preceding section). When Robrecht Laporte took over the De Bevere firm in 1950 (see 3: IV), his pipes had FABRIEK/LR/KORTRIJK (factory/LR/Courtrai) impressed on their stem, but the pipes produced at present (1971) have no mark.)

The polishing or glazing was done with two small agate rods attached to an iron tube. The two rods were held firmly in the right hand; the pipe, held in the left hand, was rotated and thus polished on all sides. This process was not used on pipes destined for shooting-galleries.

Firing was done in saggars. The kiln was lit at 4 p.m. and kept going until 10 a.m. the following day, giving a firing time of 18 hrs and producing a temperature of 1,100°F. The kiln was then allowed to cool. Coal was the fuel formerly used, but oil-firing is used now.

The manufacture of pipes at Andenne in Walloon Belgium was described earlier this century (Javaux 1935), and the methods used there were different in some ways from those used in northern France and The

Netherlands.

At Andenne, the haulier who delivered clay to the pipemakers left a sample first. This was examined to see if it had any visible impurities - iron was the most usual - and then broken into two pieces. One was stamped with the supplier's initial (and a number if he had brought more than one sample) and set on the fireplace to dry, the other was worked to see how it reacted and then tested to see how it took a polish.

If the sample was satisfactory, blocks of it were delivered and stored in a clean, dry, and well-ventilated place. When it had been dried it was broken down and put in a large maceration pit outdoors for weeks or even months (this is similar to the process Brongers says took place at Gouda, as already noted). Following this, the clay used to be worked on large panels of wood with the feet, or on a bench with an iron tool; latterly puggers were used, though an iron tool known as a *plenne* was still used for beating small quantities of clay. After being beaten, the clay was left on damp sacking for several days.

From this the *rolles* (rolls) were made, and these were set aside to harden for a day or two. The person doing this work was called a *rolleuse* (feminine as at Andenne, at least at this time, they were women). The rolls were then dipped in water and taken for moulding. The stem bore was made with an oiled iron wire with a projection at the end. This projection made a spiral groove in the bore, the wire being twisted as the roll was pulled over it, and this let in air, making the withdrawal of the wire easier. The wired pipe was then placed in the mould and the latter put in the vice. The bowl was then made with an oiled iron *schtoup*. This was the same implement as the *étampeux* referred to by Duhamel du Monceau. Its handle was formerly made of wood, then the ends were hollowed out to take lead in order to make the instrument heavier, and latterly the whole implement was made of iron. During this part of the process a gross was 180 pipes. The pipes were then set aside to dry, and the mould seams removed by a *schinque* (not illustrated or described but ppesumably an instrument similar to the Dutch *schenkertje* and German *Schenker*.

The pipes next reached the *trameuse* (trimmer - feminine) who smoothed them down with an instrument known as a *schmoud* (smoother), the process being known as *schmoudrage*.

The rim of the bowl was then finished off with the *boton* (button) and the pipes stacked in wooden troughs with an iron wire through them. A gross here was 174. When the pipes had reached a certain dryness - once again judged by experience - they were polished with an agate if they were destined for the smoker (those for shooting galleries and similar use were not polished). This was called le *glaçage*. At this stage a gross was 168.

When the pipes were thoroughly dry they were put in *cazettes* (saggars), round ones for small pipes, square ones for medium-sized pipes. *Cazette*, like Duhamel du Monceau's *gassette* and Lefrancq's *gazette* (see below), is a variant of *casette*, a saggar.[11] Long pipes - known as Montoises (that is, of Mons, the Belgian city) - were fired in two saggars, one inverted over the other. This process was called to *empoter*. A gross was now 144, at which figure it remained.

The saggars were then placed in the kiln, one atop the other, with a lid on the top one. The very long pipes were sometimes fired resting on sand to prevent their warping. From ca.1920 the kilns at Andenne were downdraught. Such kilns were generally square, and were far more efficient than those with the older, conventional, firing method. Wood used to be the fuel, but latterly soft coal was used. A slow flame was used, and the temperature had to reach ca. 1,100°C.

Javaux illustrates his manufacturing process with nine photographs, but unfortunately they are not of good quality and are too small to show details. It is, for example, impossible to make much out of the illustrations showing the plenne, the boton, the schtoup, the schnoud, or the saggars. It is clear, however, that the schtoup is inserted by hand, and that the moulds do not have the slot for the trimming of the bowl top with the knife which British moulds have. The fact that the stopper was inserted by hand makes the production figures quoted below all the more remarkable.

Various techniques were used to obtain colours other than the white normally produced by the Andenne clay. For example, black pipes were obtained by laying the pipes in deal sawdust in the saggars and sealing the saggar. The edge of the bowl could be blackened by resting it on a well-heated cast-iron plate;to blacken the stems the pipes were placed with their stems through holes in the top of a sheet-iron box which stood over the same cast-iron plate. Red pipes were obtained by using a red-firing clay from Germany.

To prevent the pipe sticking to the lips it was dipped in a mixture of Marseilles soap and white wax, and after being allowed to drain for a few minutes, rubbed with a soft flannel. Some pipes were dipped in unprocessed milk after firing and then put in the kiln again; this gave the pipes "the colour of wood" - presumably a creamy colour - and enhanced their smoking qualities.

A machine built by an Armand Renier of Andenne for Joseph Heurter after WW I to mass-produce pipes for shooting galleries at the rate of 12 a minute by passing three moulds on a revolving platform under a press needed such specialized handling and constant attention that it was abandoned. A moulder making undecorated pipes for shooting galleries could produce, so Javaux averred, ten gross (1,800) in 8 hrs - one woman worker turned out a gross of 180 per hour over a period of 12 or 13 hrs. Bowls with heads and faces on them, however, were made in tripartite moulds and required much more time - a good pipemaker could, it was said, produce between two and four-and-a-half gross in 8 hrs for three different pipes of this type. (These figures sound extremely high - the evidence for British pipe-production suggests about three gross a day both at present and ca.1800 for ordinary pipes. However, these latter figures include making the rolls and trimming them after moulding, so moulding by itself would produce a higher number.)

The Andenne industry still exists, but ca.1958 a machine was introduced which successfully mass-produces pipes (Neve 1960). The machine, invented by M Léonard, a pipemaker, is worked by the rolleuse and needs considerable dexterity on the part of the operator. It can produce up to 2,500 pipes a day, making them two at a time. When Neve was writing there was still a market for clay pipes among children, who used them for blowing bubbles, but this market was declining and the major markets were the shooting-galleries; in 1968 the Musée Communal de la Céramique at Andenne mentioned only production for these galleries.

The trameuse trims and polishes the pipes - one is shown in a picture using a blade to cut smooth the top of the bowl; apparently the button was no longer used - and, according to the article, puts on decoration.

After being dried out, the pipes are taken to the empoteuse - the woman who puts them in the saggars for firing. The man - the only male worker besides the owner - who looks after the firing is called the chauffeur. According to Neve, the pipes are fired for 24 hrs, at a temperature of 1,200°C. This is a higher temperature than that noted by Javaux, and by far the highest used by any pipemakers known. This would mean that they would give a hot smoke, but it seems possible that the extra hundred degrees recorded by Neve over Javaux's figure, if accurate, is because these pipes are not now used for smoking. Fired at that temperature they would be hard, and therefore more suitable for shooting galleries. Children using them for bubble-blowing would find they broke less easily, and shipping them would be likely to involve fewer breakages. (It may be observed that the less likely clay pipes are to break the fewer replacements are likely to be bought unless - as is the case here - there is no suitable alternative.)

Lefrancq (1970a) briefly describes the Belgian pipemaking process. He notes that the clay comes either from the Namur area or is imported from England or from Germany. Depending on the colour of pipe desired various clays are pugged and from this the rôles are made. The use of the term rôle for roll is interesting, for the word has been adopted into industrial French not for any etymological reasons but because it is pronounced the same as the English word roll. The rolls are left to dry for five or six days, and are then wired with an iron aiguilette (literally, a small needle). The roll is put in a bronze or steel mould, the bowl made with a rammer (no technical term is offered), and the moulded pipe taken from the mould and left to further dry for 24 hrs. The pipes are then trimmed, the process being called tramage (trimming), dried once again, then polished with an agate or a flint. The pipes are then stacked about 300 to a gazette (saggar) and between 250 and 350 saggars are put in the kiln and fired for between 12 and 36 hrs depending on the method used. Originally firing was with wood, but by 1808 coal was being used at Mons; at Nimy in 1879 between 85 and 110 bushels of coal were used to fire a daily production of 72,000 pipes. After cooling for a day the pipes are passed through a bath of wax and white soap so that they do not adhere to the smoker's lips. Those pipes which are to be glazed are not put in this liquid except for their mouthpieces.

A good mouleur (moulder) was able to make six gross undecorated pipes a day or two gross of the decorated pipes. A gross varied with the stage in the manufacturing process: for the moulder it was 180, at the trimming stage 174, at the glaçage (polishing) stage 168, and by the time the pipes were sold it was 144.

In September 1969 the writer visited the factory described by Neve - that of Léonard, the only manufacturer of clay pipes in Andenne. The clay now used at Andenne is imported from the Westerwald, according to M Léonard - there is an unresolved problem here, for at Gouda it was said that the clay used there came from the area of Liège, which is only ca.20 miles from Andenne. According to M Léonard the Andenne clay industry no longer produces suitable clay, the available beds being worked out.

The machine described and illustrated by Neve is identical to that used by Van der Want in Gouda (FIG 36) to produce cheap pipes and to those used in the Westerwald. This type of machine is described when dealing with the Westerwald industry in the following section. The same cylindrical clay lumps covered with oil are used for the rolls as in the Westerwald, and the method of using the machine is the same. The trimming has been reduced to an almost vestigial process, the fingers alone being used first to run round the rim of the bowl and then to clean off the stem. The firing is likewise primitive, the pipes simply being heaped on trays and put in the kilns without saggars.

The pipes are made by the grosse (gross) which is 174 at the trimming process and 144 when the pipes are dispatched to the retailer. Up to 30 gross of 174 each - over 5,000 - can be made in a day.

The maison Léonard had no moulds or tools of the earlier hand-production era described by Javaux, and the technical terminology described by Javaux is now virtually wholly forgotten. Some equipment and a selection of pipes however, is on display in the Musée Communal de la Céramique at Andenne. Included among the exhibits are plaster models for the production of metal pipe moulds, Dutch-style copper pipe moulds and a stopper, a wire, agate pencils, a Dutch-style schenkertje (presumably the schinque), an oil-pan, a work-bench with the chest used to hold the mould, a grooved wooden drying-rack, and a kiln with saggars. The schinque differs from the Dutch schenkertje in having a V-shaped bend at the end of the trimming-wire instead of a curve. The chest has a moving metal face turned by a handle which is unusual in having only one arm; the solid face is of wood, reinforced at the top by seven thin metal sheets screwed to it. The drying rack differs from that used in Gouda in having the grooves parallel; near one end two breaks run across these grooves, probably to take the pipe bowls staggered in two rows one behind the other so as to enable the stems to lie parallel without leaving an undue gap between each pipe. The saggars are circular and of fireclay, with wire reinforcing bindings, and closely resemble the Westerwald saggars; the kiln also closely resembles those used in the Westerwald, described in the next section.

SECTION IV
METHODS USED IN THE WESTERWALD AND BRANDENBURG AREAS, GERMANY

The German clay pipe industry (as distinct from the manufacture of porcelain pipes) appears to exist only in the Westerwald area, on the east side of the Rhine north of Coblenz. At present it produces almost wholly for the shooting-gallery, bubble-blowing, and Christmas-present markets (this last is a German custom) and is restricted to the communities of Hilgert and Baumbach, though formerly it existed elsewhere in the area, for example at Höhr-Grenzhausen. There was certainly a pipe industry in the area before the mid-C18, for ca.1750 the Höhr industry became a serious rival to that in Gouda (Helbers and Goedewaagen 1942: 18-19). The area was a pottery centre from the end of the C16 and since last century has had a flourishing tourist-orientated pottery industry producing traditionally-styled wares (Klein 1955: *passim*; I. Nöel Hume 1967; Reineking-von Bolk (ed) 1971: 44).

In April 1969 the writer visited the area and observed the manufacturing processes used by two makers - Richard Simonis of Hilgert and Wilhelm Klauer Söhne K.G. of Baumbach. Simonis is an elderly man making pipes with one assistant in a small workshop; the Klauer firm, founded in 1890, has a large factory producing 3,000,000 pipes a year and a considerable amount of pottery. All pipes are now made with the help of a machine operated by hand, even in the essentially home industry of makers such as Simonis. These machines can make both long-stemmed and short-stemmed pipes, though the former are now rarely manufactured. Klauer has a machine for these former; Simonis would make them by hand. (How long machines have been used to produce the pipes is uncertain. Those used here are the same as those used at Andenne by M Léonard and at Gouda by the Van der Want factory when they required rapid production of cheap pipes. As noted when describing Andenne pipemaking the Andenne machine was said to have been invented ca.1958 by M Léonard, an attempt after WW I to mass-produce pipes by machinery at Andenne having failed because the machine was found to be impractical. In 1923, however, the last ten workers at the Gambier firm in Givet, in France on the Belgian border, noted (see 3: V) the difficulty they had because foreign and particularly German pipes could come into France without paying duty and French pipes were made entirely by hand. The implication here is that foreign centres, doubtless Belgium and Germany, were using machinery by that date.)

The clay used for pipe manufacture is local, coming from Baumbach and Ransbach. Simonis, who used a more primitive arrangement, stored his clay outside but under cover, and when it was necessary to make a fresh mix, shovelled the clay through a window above the pile into a bath where it was left to steep for several days. It was then ladled on to the floor where it was mixed in alternate layers with *Abfall* or *Schrubschen* (spew). (*Abfall* is trimming; *Schrubschen* is the local colloquial term and cannot be convincingly identified with any known German word, though it may derive from the Dutch *schrobbles* and *scrables* - "*-schen*" denotes a diminutive.) This mixture is then put through a pug-mill and extruded through a plate with 21 holes each approximately 3/4 ins wide (FIG 42). This clay is then cut into suitable lengths and the bunches put on a set of rollers and pushed through a guillotine (FIG 43) which produces pieces approximately 1-1/4 ins long (FIG 44). These are heaped in a container and oil poured over them.

Each piece forms a pipe, and is placed in the bowl of the mould. The machine used is operated by three levers. The vertical one clamps the upper half of the mould-plate to the lower (FIGS 45-46) (these plates lie on their side and do not stand vertically; the two parts fit as do conventional pipe-moulds and can have matrices for either one or two pipes). The horizontal lever pushes home the *Stöpfer* (stopper), clay being forced out round the stopper (as in the Dutch process) and also down the stem part of the mould and out that end; and the third lever is pushed in and inserts the *Draht* (wire) into the stem (FIG 47). The pipes are removed from the mould, the worst excess clay on the stem is pulled off, and the pipes are put in a *Kasten* (box) to dry before being trimmed.

Although pipes are no longer hand-made, their method of manufacture was demonstrated. The *Rolle* (roll) is produced with both hands on the one roll, and with the assistance of a *tollbrett* (handboard - literally, a rollboard) which has a flat upper surface and a gently-curved lower surface at one end. The *Form* (mould) was put in a *Kasten* (chest)[12] where it was cushioned by a wad of paper or cardboard called *Pappe* (slot - literally, cardboard). Some moulds are of brass, others iron. The rest of the process was the same as that used in The Netherlands - a Dutch-style *Stöpfer* (stopper) (FIG 48) and *Schenker* (shanker) (FIG 48) were used. However, the stopper here had a metal handle - presumably to give it more weight - whereas the Dutch stopper has a wooden handle, and the *Schenker* had a blade set in the handle. A *Draht* (wire) was used to prevent the stems of long pipes warping while drying and the curve on the stems was made by using a curved wooden grooved tray very similar to, but smaller than, that used (without a curve) for long Dutch pipes. As with the Dutch trays, half the tray was filled with the bowls at one end and the other half with bowls at the opposite. There was no special term for this board.

The trimming of the short pipes now made is done by a woman known variously as a *Trümmerin*, *Abschneiderin*, or *Pfeifputzfrau* (trimmer) (FIG 49). (The first-noted appears to be the local technical term; the "-*in*" ending denotes a woman. The other two - literally "cutter-woman" and "pipe-cleaning woman" are straightforward non-technical terms.) The trimming is a very fast but complex process best explained in a numerical sequence. (1) Most of the remaining excess clay is cleaned off the stem with the fingers, which run down the stem from the bowl. (2) The knife - an ordinary paring knife known as a *Trimmesser* (finisher's knife) - cleans the mould-line off the side of the bowl away from the smoker, moving from the base of the bowl to the top. (3) The excess clay on the rim of the bowl is removed with the knife. (4) The inside of the bowl rim is cleaned by running a finger round it. (5) The mould-line on the top of the stem is cleaned with the knife, which is run from the bowl to the mouthpiece. (6) The pipe is turned end for end and the mould-line on the underneath of the stem removed by running the knife from mouthpiece to bowl. (7) Finally the fingers are used to smooth the stem. (Javaux (1935: 11), noting the derivation of Andenne terminology from that used at Höhr, gave a verb schmoudern to smooth for this final finishing, but neither firm visited was familiar with the term.) The whole process takes about six or seven seconds. Occasionally a Draht (wire) is used to check that the bore ran through to the bowl - in this case the wire is pointed, as is its British equivalent known as a "finishing wire". The pipes are then stacked on a Brett (board) to dry further before firing.

When higher-quality pipes used to be made, polishing was done with a Bernstein (piece of amber) or a Glattmachstein (polishing stone); and a liquid known as Wachs (wax) and made from water, beeswax, and a little soap, was used.

Both Simonis and Klauer used rather crude circular saggars with bottoms, made on the premises from fireclay. The term for saggar is Kapsel. In stacking the saggars in the kiln Simonis placed his tall saggars at the foot and the smaller ones on top (FIG 50), covering the topmost one either with a square saggar with rounded corners which was inverted or layers of paper covered with wet clay. This covering was simply called a Deckel (lid). Klauer stacked his smaller saggars at the foot and his larger ones on top (FIG 51), but the difference seems entirely to be one of preference. A number of Klauer's saggars were bound together with wire which was plastered with wet clay before being put in the kiln, and the capping here was layers of paper smeared with wet clay. Klauer also used wet clay as a strapping to close the joints between saggars. Klauer's business, being much bigger and also concerned with pottery manufacture, used mechanical assistance to load the saggars into the kiln (FIGS 52-54). The pipes were stacked in the saggars conically, bowls at the bottom.

Black pipes were obtained by firing in sawdust; unless a new saggar was also used the result would not be satisfactory, so it was said (this may be a piece of tradition rather than genuinely the case). Blackened rims were made by placing the rim on a hot metal plate.

Both manufacturers used briquettes to start the firing and for the first eight to nine hrs, but both changed to beechwood for the final hour or two (FIG 55). Klauer's said this was because the wood gave a long flame and spread the final heat better. Beech does not grow locally, and has to be imported (FIG 56); it is also used by many Westerwald potters (Reineking-von Bolk (ed) 1971: 44). Both makers fired for ten hrs and the maximum temperature reached was 950°C.

For marketing the pipes were packed in wood-shavings.

The only published account of pipemaking in Germany known to this writer is that in P.H. Sprengel's Handwerke und Künste in Tabellen, an C18 encyclopaedia continued by O.L. Hartwig, the ninth "collection" (Sammlung) of which appeared in 1772. The account deals with pipemaking in Brandenburg, but the author appears to know little about the history of the industry and nothing of the industry elsewhere in Germany, though as noted above the Westerwald industry was certainly in existence well before Sprengel was writing. Sprengel does, however, indicate that the terminology he records - regretably, he indicates in his introduction he gives only some of the technical terms - probably came from The Netherlands, from where the industry spread to Cologne before coming to Brandenburg. In what appears to be an addition to the original text he notes (pp301-2) that the first two

Berlin pipe factories opened in 1753 and 1755 and that there were two other pipe factories in the Brandenburg area, as well as a number of minor local makers.

Pipeclay is defined by Sprengel as being not quite so fine as "porcelain clay" but better than common clay. It was white in colour, though various types came in various shades of white, and retained this colour when fired. (Assuming, as true porcelain had been manufactured in Germany since ca.1709, that "porcelain clay" - kaolin - was known for what it was by the time Sprengel was writing, it seems clear that this pipeclay was not kaolin, so it was presumably a type of ball clay.) This clay, Sprengel continues, was mined in The Netherlands, in the Cologne area, at Bamberg (in Bavaria, ca.30 miles N of Nuremberg), and in the Hildesheim and Magdeburg areas of north central Germany. The Berlin factories used Magdeburg clay, the three villages of Sommersdorf, Heidersleben, and Herrenhausen near the city of Magdeburg being, according to Sprengel, the most important clay-producing centres.[13] The clays from these three centres had to be mixed according to Sprengel: one was too rich, another too poor, and a third could not take the heat of firing. A few factories added clay from Ziegeser also, but it was held to contain too much sand. Dienemann and Burre (1928: 1078) note the Saxony clays, including the Sommersdorf deposit, though this is noted as being a coloured clay. However, there is also a reference to a fat clay having been used in the potteries at Sommersdorf, which may be the clay Sprengel noted as being too rich to be used alone for pipemaking. The mixing of clays to obtain the right consistency is known elsewhere - see, for example, Plot's reference to the Newcastle-under-Lyme pipemaker Charles Riggs doing this with Staffordshire clays in the later C17 noted in 2: X. (The reference in Sprengel to clay being mined in The Netherlands may refer to Roosendaal clay (2: IX), but may possibly also refer to Andenne clay which was used in The Netherlands and possibly shipped to Brandenburg through Holland. Cologne has been noted before as supplying pipeclay - this probably refers to the clays from that area used to make the famous Rhenish stonewares of medieval and post-medieval times, though it may refer to the Westerwald clays at least some of which were shipped to Cologne for resale (see Section II above). Aachen (Aix-la-Chapelle), Raeren, Frechen, and Siegburg all lie within ca.40 miles of Cologne, and the Westerwald area lies only slightly farther away, to the south. All these centres were famous for their stonewares (see I. Noël Hume 1970: 276-85 and refs; also Dienemann and Burre 1928: 118, 181-97 for the Rhenish and Westerwald clays).)

Correct preparation of the clay was vital if it was to be pure enough to be used in pipemaking; sand in particular had to be removed as every piece would cause a hole or crack in the pipe when fired. The person in charge of preparing the clay was called a Schlämmer (literally, elutriator). He mixed the three clays noted above and soaked the mixture in a large wooden tub (FIG 57,e). By adding water the clay became completely liquified, and it was then worked through sieves placed over a second tub. This removed stones and other coarse impurities but not the sand. The liquid clay was then poured down a gutter to a wooden box called a Schlämmkasten (settling tank - literally, elutriating-box) (FIG 57,ee). As the liquid clay ran down the gutter it went through a fine hair sieve into the settling tank. In the *Schlämmkasten* were two or three partitions forming sedimentation tanks where the sand could sink to the bottom, the liquid clay running from one tank to the next. In the settling tank the clay was then dried in the sun. Because of this the clay had to be prepared before winter, for during winter and until about Pentecost the following year the clay had to macerate. When the clay was ready for final working, it was cut into rectangular pieces like bricks, and trimmed at top and bottom with a knife to remove remaining impurities.

The clay bricks were then given to the *Thonschneider* (literally, clay-cutter - the word for clay is now spelt *Ton*) who cut the blocks with a *Thonschneide* into very thin leaves. This cutter resembles, from Sprengel's drawing (FIG 57,h), a carpenter's draw-knife as used for making shingles - indeed, it would have been used in the same way.[14] This cutting further worked the clay, and from the squeaking sound made by the knife on the clay the *Tonschneider* could tell whether there were still impurities in the clay and if so, remove them. The *Tonschneider* then moistened the clay with a little water, beat it with an iron *Thonschlägel* (*Tonschlegel* - clay-mallet) to remove lumps. Finally, the clay was taken to the workshop to be used by the pipemakers.

From this clay a worker known as a *Roller* made the blanks for the pipe. These were made much thicker at one end than the other by rolling the clay on a smooth board with the fingers only. The blank was known as a *Weller* (a term defined in the *Muret-Sanders Encyclopaedic English-German and German-English Dictionary* as 1) brushwood = *Wellenholz*, 2) roll of clay for clay pipes, 3) cylinder of clay round laths, loam and straw). The skill of the *Roller* lay in his being able to judge the amount of clay needed for the various-sized pipes he might be called on to make. After making a few *Weller*, the *Roller* placed them in a bunch on top of each other to dry somewhat before they were passed on to the next worker.

The next step in the process was the moulding. This was done by the *Kaster* (the Dutch term for moulder) or *Former* (moulder). His first action was to spread linseed-oil with his finger in the groove on each half of the brass *Pfeifenform* (pipe-mould) (FIG 57,f). He then picked up the roll so that the thicker part rested on the workbench and inserted the wooden-handled *Weiserdrath* (FIG 57,g) into the roll as far as the head. (*Weiserdrath*, literally, pointer-wire - *Drath* is the modern *Draht*, wire - is translated in the Muret-Sanders dictionary with specific reference to pipemaking as "tube-wire", a term which is unknown in English pipemaking to this writer. Possibly "shanking wire", a term known in the C17 English industry, would be the equivalent.) The wired roll was then placed in the mould, the two parts of which were held together by *Vinnen* (the technical term for *Zapfen*, pin or peg; *Vinnen* seems unknown in German, but it might just possibly be a corruption of the English word pin). The mould was then mounted in a *Schraubenstange* (FIG 57,i) (literally, a screw-bar - "chest" to English pipemakers) which was described as being the same as a carpenter's vice for holding planks for planing except that it was made of iron. The bowl was then formed with the *Stopfer* (stopper) (FIG 57,b), an iron cone with a wooden handle, the cone first being dipped in linseed-oil and then forcefully rammed home. This finished, the vice was opened, the pipe lifted out with the help of the wire, the excess clay removed with a Haken (hook), a form of Schenker (FIG 57,c), and at the same time the mouthpiece was trimmed. The excess clay was called Nath, now spelt Naht - literally, seam or mould-line - according to Sprengel, but it is possible he has transposed the technical and non-technical terms for this as his non-technical term, Grad, modern Grat, seems to be the technical term to judge from dictionary entries. The pipe was then set aside to dry slowly in the shade. In order to cut down the amount of excess clay along the mould-lines, the moulder would sandstone the two halves when he noticed they were not fitting accurately.

The pipe then had to be trimmed and finished prior to firing. This was done in two stages. The first worker, called a Tremmer (trimmer), used a multi-purpose tool called simply a Messer (knife) (FIG 57,d). This tool had a wooden handle but the blade, which lay in the same plane as the handle, instead of directly joining the handle, dipped down in a U-shaped bar of metal - rather like the basket-hilt of a sword - before coming up again and joining the handle. On the base of the handle was a stamp with the maker's initials. The pipestem was smoothed with the oval-sectioned back of the blade and the bowl with the U-curve, a Tremmkopf (literally, a trim-bowl) - a horn cone - being inserted into the bowl to prevent damage to the bowl shape (FIG 57,m - not n as in text). The outer lip of the bowl was then denticulated with the saw-toothed edge of the blade, and the maker's initials put on the heel with the stamp on the base of the knife-handle (the heel is referred to as a Zapfen, spur with Ferse, literally heel, as the technical term). A stem mark comprising the name of the city of manufacture between several lines of circles was then imprinted with a marked brass plate (FIG 57,n) (Sprengel used the verb pragen, to stamp, then gives the technical term as schmussern, but here he appears to be confused, for the Muret-Sanders dictionary gives schmussen (not schmussern), a word which otherwise means to tarnish - Schmuss, dirt - as to polish clay pipes, and this seems likely, for it can plausibly be related to the verb schmoudern formerly used in the Westerwald for this process and to the Dutch smoier tool, terms which must derive from the English verb to smooth.)

The pipe then went to the second worker, the Pfeifenglaser (literally, pipe-glazer), who burnished it either with a glass pencil or preferably a piece of agate on a wooden handle (the verb used is streichen, to stroke - glasen is the technical term given; the nearest orthodox term is glasern, to do glazier's work). It was noted that this "glazing" took the place of varnishing which was used on clays of poorer quality.

The pipe was then left to completely dry (austroken - drying out - is the technical term recorded; stoving in English), for if fired with any moisture in it at all it would turn yellow. The pipes were stoved on a Trockenbrett (drying board) (FIG 57,j), being placed with bowls at alternate edges of the tray and lying in grooves. At the end of each groove was a hole to take the heel of the pipe and the bowls were stood upright.

The kiln used for firing the pipes was approximately 14 ft high overall and ca.8 ft square in section with an arched roof (FIG 57,k). The furnace had four openings front and rear approximately 18 ins square which were used to load fuel - wood - into the furnace. Under each of these openings was a draught-hole (to judge from the illustration, smaller than the stoke-hole);

other draught-holes were in the front and back walls and the roof. Above the furnace (the text says under, but this must be an error, both from the point of view of logic and of the illustration) is an iron grill on which stand the Pfeifenkasten (saggars - literally, pipe boxes). Above the level of the stoke-holes there was a door at both the front and back of the kiln through which the saggars were loaded.

The saggars were made of ordinary potters' clay such as that from the Berlin area and were approximately four ft long by about two ft in cross-section (FIG 57,1). They were stacked in the kiln beside each other in four rows. Each row comprised two piles of boxes and each pile consisted of three boxes one atop the other. In order to prevent the pipes distorting while being fired, a packing of coarsely-ground broken pipe-fragments was used in the saggars. The bottom of the saggar was covered with this and alternate layers of pipes and ground pipe-fragments built up.

The two doors were then bricked up and firing commenced, the temperature being raised slowly. For the first 3 hrs the draught-holes were tightly closed; these were then opened and the pipes fired for another approximately 11 hrs. To judge whether the pipes were properly fired, a few pieces of broken unfired pipe were attached to the outside of a saggar near a draught-hole and these were withdrawn and broken to test the firing. If the pipes had reached the correct temperature the fire was allowed to gradually die and the kiln to cool off.

In the kiln a fine dust settled on the pipes causing them to stick to the lips when used. To prevent this the outer surface of the pipe was covered in a mixture called Schnolle (translated as Tünche - whitening, also varnish) obtained by boiling tragacanth gum, white wax, and soap, and then rubbed with a cloth.

The local Brandenburg pipe factories made three kinds of long pipes, 27-Zoll, 24-Zoll, and 21-Zoll; in addition, short pipes were made which were only 6-Zoll long (respectively ca.27-7/8, 24-3/4, 21-5/8, and 6-1/8 English inches - see Appendix III). The pipes were packed in chaff in boxes and sold by the Gross (gross - the current German term is Gros).

The manufacturing process and terminology described by Sprengel offer some very interesting comparisons to those recorded in the Westerwald.

The presence of the terms Kaster, Tremmer, and Schnolle indicates, as Sprengel suggests, an ultimately Dutch origin for the Brandenburg industry, though the presence of a majority of German words for other technical terms suggests there had probably been no direct contact after the initial introduction of the manufacturing process into Germany - possibly in the Cologne area, as Sprengel also suggests. The general manufacturing process too has close connections with the Dutch. There is the elaborate preparation and mixing of the clays - this may, of course, have been partly due to the local pipe-clay being rather poor in quality. However, the peculiar cutter and its use to cut the clay blocks into thin slices seems to be without parallel elsewhere in the Western European pipemaking tradition. The tool may possibly have been adopted from carpentry, and the slicing of the clay, as Sprengel implies, may have been a necessary part of the removing of impurities from the clay. The brass moulds used, to judge from the description and also the illustration, were the same as the Dutch brass moulds, and so was the stopper, though knowledge of the *gootje* used by the Dutch to help hold the roll while wiring it had either been lost or else the Dutch pipemakers settling in Germany had reached there before the invention of the *gootje*, a tool which appears to have been a peculiarly Dutch invention as there is no trace of it ever having been used in England. In the case of the term for the stopper there is an interesting pronounciation difference between the Brandenburg term - *Stopfer* - and the Westerwald - *Stopfer*. (*Stopfer*, meaning a person who stuffs or crams - i.e. a packer - is known in German).

The *Haken* used to take the excess clay from the mould-lines and trim the mouthpiece is undoubtedly the Dutch *schenker(tje)* in a simplified form, but here - unlike in the Westerwald - the technical term *Schenker* appears to have been already forgotten by the mid-C18 and the simple *German* term "hook" substituted. Again, the *Messer*, the multi-purpose tool used to trim the pipes, is the equivalent of the multi-purpose knife used by the Dutch which had a notch on the back of the blade for trimming the stem, a hook at the bottom of the handle for removing the dottle or pep from inside the bowl, and a saw-toothed blade to mark the lip of the bowl (the north French *estriqueux* described by Duhamel du Monceau was another fundamentally-similar tool). Unfortunately Duhamel du Monceau does not give any of the Dutch terms for the tools he describes and this particular tool has not survived in The Netherlands, but it probably did have a specific name. In Brandenburg, however, the term had apparently been forgotten by the descendants or inheritors of the pipemaking tradition, and it was simply called the German for "knife". The *Tremmkopf*, on the other hand, appears from available evidence to be a new tool. However, the *Schnolle* process follows a Dutch tradition, one which also spread to Norway (see Section VI below). The burnishing process appears to be identical to that used by the Dutch, who in any case appear to have used this type of finish very much more frequently than did the English, whose pipes suggest it was used only in the second half of the C17 and the earlier C18. The stoving boards are also very similar to the Dutch and Dutch-derived (north French, Belgian, and Westerwald) stoving boards, and there is no trace of anything so elaborate in the English industry. The saggars, however, are not the sophisticated Dutch type, and they are, at four ft by two by two, unusually large.

Sprengel does not use the term roll, which is strange in view of the widespread use of it elsewhere in the European industry. The use of the obscure term *Wesser* for roll, however, suggests the Westerwald term *Rolle* was indeed unknown in Brandenburg. In comparing the Brandenburg and Westerwald traditions one notes that Sprengel says the palms of the hand only in rolling, whereas in the Westerwald wooden boards were used. In Brandenburg the Dutch terms *kaster* and *tremmer* for moulder and trimmer respectively were used, while in the Westerwald there appears now to be no known technical term for the former and trimmer has evolved into *Trümmer(in)*. (The word *Trümmer* does occur in German, but with the meaning wreckage or rubbish.) The absence of the term *Schenker* from Brandenburg has already been noted. The Brandenburg term for saggar, *Pfeifenkasten*, is close in meaning to the Dutch *pijpenpot* and may be a translation, while *Pfeifenglaser* would be a natural German adaption of *[pijpen]glaaster*. The adaptation of the Dutch term *snollen* in the polishing operation is interesting: in Dutch the term is used as a verb and in the word snollap for the polishing cloth, but not for the liquid used, which is called zeepsop; but if Sprengel is correct the term Schnolle was being used in Brandenburg for the liquid. (The Muret-Sanders dictionary lists Schnolle and compares it to a colloquial verb schnullen, to suck, but this seems improbable.)

It is difficult to know if all Sprengel's observations are correct, but if so, certain inaccurate traditions appear to have built up in the particular branch of the industry he discusses. Clay pipes do not stick to the smoker's lips because of fine dust which has settled on them in the firing: this feature is an inherent property of clay when fired to the temperatures used in pipemaking. It also seems doubtful that firing an incompletely - stoved pipe would result in its turning brown - there would be a much greater possibility of its shattering in the kiln. Again, it is not likely that sand unless present in very large quantities, would cause cracks or holes in a pipe when fired unless the gravel was big enough to fall our of the body of the pipe or project in such a way as to weaken it. Certainly in ceramics sand and gravel are frequently added as tempers (undoubtedly, however, sand or gravel would detract from both the practical and aesthetic qualities of a pipe).

SECTION V:
METHODS USED IN DENMARK

Excavation at the site of the Johan Adolf Rømer pipe-factory at Nørresundby in Denmark, which operated from 1772 into the early C19, indicated that Rømer produced at least 34 different styles of conventional clay pipe as well as stub-stemmed clay pipes which took a wooden stem and were glazed with various colours. Fragments of kiln-ware were also found, which showed the saggar-types used, and also the method used to fire the glazed pipes. Examination of the then-surviving structure and of various brick-types found revealed evidence for the type of kiln used (Kristensen 1959: 109-24). However, no evidence in the way of tools is described to indicate the precise way in which the pipes were manufactured - the only relevant reference is one which notes that after Rømer had retired his brass moulds were taken over by a nearby maker and used for some years.

The evidence available for the kiln permitted a reconstruction to be drawn. The kiln was substantially square in cross-section, and of two compartments. The lower compartment was the furnace, and had a semi-circular stoking hole. Above it, supported by an arch, was the firing chamber, the floor having a number of openings to allow the heat and smoke to pass through. The entrance to the firing chamber was a rectangular opening directly above the furnace stoke-hole, and above this chamber the arched roof connected with a large chimney (FIG 58).

Two types of saggars for the conventional pipes were noted, one cylindrical and the other also circular in cross-section but with a wider top than its base. (This latter shape recalls Gouda examples, though these latter had feet.) The height of these saggars was estimated to be ca.25 ins, and there was room in the kiln for six to nine of them. (This sounds an extremely small number of saggars for a kiln-load, but though the plans and sections of the kiln (FIG 58) do not carry a scale, nor does a photograph of the kiln base (Kristensen p.109 fig 14), the latter confirms the accuracy of the plan of the kiln base and that the kiln was small. If the kiln bricks were ca.9 ins long by ca.4-1/2 ins wide - these dimensions appear to be standard for modern firebricks (cf Rhodes 1969: 86 fig 83); Kristensen (p.113) mentions "large kiln bricks", as well as arch bricks and wedge bricks, both types noted by Rhodes - the internal measurements of the firing-chamber of the kiln, allowing for mortar thickness, must have been ca.4 ft 9 ins by ca.3 ft 6 ins. Even if the bricks were bigger, the kiln still could not have been large.[15] A further indication of its smallness is the fact that later it had been converted into a large open fireplace and chimney typical of houses of this period, and that the recorded pipe-production was small - the maximum figure noted, for 1802, was only 5,000-6,000 gross a year (Kristensen p.113; see also pp310-1 below).) The terms used for the saggars are simply lerkapsel (clay container) or braendingkapsel (firing-container) - whether these are the terms which would have been used by Rømer to describe his saggars is not stated.

The glazed pipes were fixed to special clay plates for firing, and generally placed in special rectangular saggars. The procedure was as follows. Dried ("stoved" in the English industry) pipes had part of their stems broken off so as to leave approximately 1-1/4-1-1/2 ins. The stub-stemmed pipe was then stood vertically on rectangular plates of unfired clay by pushing the shortened stem into the clay. The plates were next turned upside-down and dipped into the glaze just deep enough for the glaze to touch the surface of the plate. The plates were then placed in a long rectangular saggar almost four ft long by approximately nine ins across and seven ins deep (FIG 59). The sides of the saggars had square holes in them, apparently to let water vapour escape, and near the bottom were small round holes of unknown purpose. The saggars were piled on top of each other for firing, the topmost being covered by a row of clay plates to keep out smoke and ash. Less frequently circular plates (FIG 60) were used, being placed in the foot of the cylindrical saggars for firing.

(For details of the firm involved, see 3: VII.)

SECTION VI:
METHODS USED IN NORWAY

The excavation and investigation of the Jacob Boy pipe factory at Drammen, Norway, which was in operation from 1752 to sometime after 1788, revealed some evidence of the manufacturing process used there (Pettersen and Alsvik 1944: passim, esp. 32-40). Unfortunately the authors also use Diderot and Sprengel as sources for comparison and it is occasionally difficult to differentiate between interpolations from these two sources and what is actually known about Boy's work. In 1754, only two years after the business had been started, the firm was using 13 different moulds, and as late as 1767, when Boy had been trying to sell the business for a year and production was presumably down from earlier days, a price-list of the firm still lists 13 types. The excavations in fact revealed approximately that number of recognizable types.

An inspection for fire safety gives a detailed description of the whole Boy property, which was considerable and clearly that of a well-to-do man - it was on the street which housed the city's richest and most powerful business district. Of more use from the point of view of describing aspects of pipe-manufacture, however, is an account of an inspection of the factory by a justice of the peace and six jurors in 1754, shortly after the factory had been set up.

The factory lay immediately behind Boy's house and had two storeys and a basement. Prepared clay and the moulded but unfired "green" pipes were stored in the basement to keep them at an even temperature throughout the year. A deep well and pump was apparently also located in the basement, the clay having to be kept moist for working at all times. Unrefined clay was kept outside in a shed, probably in order to macerate. The workshop lay above the cellar, with large tables on both sides of the room along the walls. Boy employed a master, who was probably responsible for running the business; four apprentices who made the rolls; five journeymen who moulded the pipes, six young women who trimmed, polished, and marked the pipes; and two labourers who screened and cleaned the clay and did many other daily chores. A man who made and repaired moulds was also on staff. Also on the ground floor was a locked storeroom where the fired pipes were stored prior to packing in barrels. The kiln was in the centre of the building and situated on the ground floor; on the evidence of a woodshed attached to the north side of the building and under the same roof as the worked-clay storage shed the kiln was presumably fired with wood (other fuel would probably have been prohibitively expensive in Norway). Other rooms in the building included one for the master, one where he kept his tools, and sleeping quarters for the journeymen. The five journeymen could each produce six gross pipes a day of normal-sized pipes - that is, moulding the pipes only - or 180 gross a week; adding the products of the trainees (who appear to have been apprentices), enough pipes were produced a week to have weekly firings in the kiln. The kiln could hold 380-1/2 gross normal-sized pipes. By ca.1760, when Boy is fighting to prevent rival pipemakers from setting up in the Akerhus diocese, he notes 50 people earned a living in his factory, 30 of them working daily, which suggests the business had expanded since 1754. By 1788, however, the trade was being kept alive by only a man, a woman, and a journeyman.

The 1754 account refers to 13 different moulds (*form* - mould) as already noted, all in good shape along with their stopper and wire. The term for the stopper is the same as in English; the term used for the wire is *rørtråd*, which can be translated "pipe wire". The term *skrue* (screw) is also used to describe a piece of equipment, presumably the vice, although the term used (Pettersen and Alsvik illus. on p.21) for the vice shown by Diderot is *skruestikke*, which is the normal term for vice. The term *rull* is used for roll. The moulded pipes were put to dry on a *riffelbrett* (ridged board) - these were locally made and obviously of the Dutch or Dutch-derived tradition. The saggars, which came in different sizes to accommodate the different types of pipes to be fired, are referred to as a *leirpotte* (clay pot). How many - if any - of these terms were technical pipemaking terms is not stated. Glazed pipes are referred to, and while this generally meant polished ones similar in finish to Dutch pipes (cf *ibid*. p.43 n.4), the 1767 price-list does refer to one type, of English style, with a blue glaze and the excavations did find mouthpiece-fragments with a blue glaze (see Section VII below).

The trimming and polishing process is described (*ibid*. p.43 n.4) but unfortunately it is not clear whether the description is based on Diderot and Sprengel, both of whom are listed in the bibliography and are certainly used in the text, or on evidence specifically relating to Boy's work. The inclusion of the information in a footnote suggests the former to be the case, as does his use of the term tragacanth gum, white Sprengel uses, but the inclusion of the verb *snolle* (translated here as "to snub") to describe the rubbing of the pipes with a varnish of tragacanth gum, white wax, and soap suggests the writer has some other source as well, for Diderot does not record any Dutch technical terms (nor does his source, Duhamel du Monceau) and Sprengel uses the term *Schnolle* to refer to the liquid used, not to the rubbing on of the liquid, yet as noted earlier in Dutch *snollen* does have the meaning Pettersen and Alsvik give it. The names of the six moulders employed by Boy are not Norwegian, and five of them are probably Dutch, which suggests that the production methods followed at the Drammen factory would have followed closely those described in the section on Gouda manufacture.

Boy's original intention was to use a local clay from Blefjell, some miles to the SE, but even in his proposal of 1751 where he states that an advantage of his new factory will be that it will use local clay he is careful to include a clause allowing him to import any clay necessary for certain types of pipes duty-free. The following year Boy was able to prevent two would-be stoneware manufacturers from using the Blefjell clay on the ground that it would ruin him, but by the 1754 visit Boy appears to have been using imported clay entirely. From where this clay came is not stated. In 1752 the British embargo on exporting such clay (cf Duhamel du Monceau 1771: 10, Oswald 1960a: 43) and an expected Dutch embargo were cited as additional reasons for preventing the stoneware manufacturers from using Boy's Blefjell clay (by Dutch clay is probably meant clay shipped from The

Netherlands - probably Belgian and north French and possibly also Westerwald clay). Pettersen and Alsvik (p.38) refer to a later-established Norwegian factory (whether of pipes is not clear) using Bornholm clay, (see Section IX below; also p.309), but there is no evidence that Boy got his clay from there.

Unfortunately no account of the excavation itself is given and only the pipes are described, so that there are no details of the kiln structure (if indeed any were found) or of any saggar fragments - again if any were found. Wood, as already noted, was the fuel used, but nothing else appears to be known about the method of firing.

(For details of the firm involved, see 3: VII.)

SECTION VII
METHODS USED IN GREAT BRITAIN

No accounts of English pipemaking as detailed as Duhamel du Monceau's descriptions of French and Dutch pipemaking are known to the writer; indeed, many accounts of pipemaking written in English are of distinctly limited value.

Virtually all the accounts of English pipemaking that exist are concerned with the industry in its latter stages - the C19 and later - when the process had become relatively industrialized. By the beginning of the C19 pipemaking firms were appearing, as distinct from the single craftsman with his wife and two or three apprentices or journeymen working in his dwelling. In Liverpool in 1796 there were seven pipemakers employing ca.60 men and about the same number of women as trimmers (quoted in Oswald 1970b: 228 n.6; the date is given in Chandler 1957: 340), which suggests each maker employed ca.15-20 workers and indicates small firms were already established by this date (cf T.H. Thursfield 1907: 163). John Frederick Bryant jr, a member of an C18 Bristol pipemaking family, records (Bryant 1787: vii-viii) that prior to the Stamp Act crisis of 1765-66 his father - John Frederick Bryant sr, free 1747 - had employed ten journeypeople in his business which included making pipes for export. As Bryant sr had been able to keep himself and his wife and nine children in some comfort prior to the Stamp Act it is clear his business was a flourishing one and probably representative of a more-than-average-sized establishment of the time. At Great Yarmouth in 1757 a pipemaking premises was advertised "with a proper convenience of Shops for Three Couple of Hands" (quoted in Oswald 1970b: 239), indicating a master at that time might have had a staff of six. Houghton, writing at the end of the C17 and describing a pipemaking business, implied six was an average number of workers at that time also (Houghton 1693/4: 205).

In 1814 the surviving parts of the Elizabethan Statute of Labourers (1563) were finally revoked, removing amongst other restrictions the seven years' apprenticeship necessary to qualify for a trade. A system arose rather similar to the Dutch pipemaking "firms" of the previous century when the master-pipemaker was indeed a master and even as late as ca.1771 when the Gouda industry was in decline could employ 60 or 70 workers many of whom must have been "pipemakers" in the English sense though undoubtedly they specialized in certain aspects of the work (Duhamel du Monceau 1771: 6). In 1914 the firm of McDougall of Glasgow employed 50 men and 100 women in various aspects of pipe production (Walker and Walker 1969: 145), and by this time the heyday of Glasgow's pipe industry was over. In the second half of last century McDougalls may have had as many as 250-300 workers on their staff.

The writer has described the production methods of McDougall's as they were two months before that firm closed in November 1967 (Walker and Walker 1969) and has also visited (December 1967) the firm of Pollock of Manchester, at that time the only surviving British pipemaking firm (for two small pipemaking concerns subsequently founded, see p.385 n.). The process used by the Belfast firm of Hamilton has been described (A. Deane 1914: 8-9, 11, pl I and figs 2-4) (FIGS 61-67), as has that of the Chesterfield and Bolsover, Derbyshire, firm of Robinson (Robinson and Spence 1937: 195-6); and that of the last Leeds pipemaker, Sampson Strong, who died in 1953 and whose workshop has been re-erected partly in the Castle Museum, York, and partly in the Abbey House Museum, Leeds (FIG 68) (Anonymous 1954a; 1967). At Rainford in Lancashire, pipemaking ceased in 1956, and is described by Berry (1963). Some evidence was collected by the writer in June 1968 on the defunct Broseley industry from members of the Southorn family. Further, there is the evidence which can be deduced from the reconstructed works of the firm of Christie of Leith, Edinburgh, in the Huntly House Museum, Edinburgh (FIGS 69-70) and from original photographs of the firm (FIGS 71-72); from the equipment in the Birmingham City Museum and Art Gallery belonging to Birmingham firms of Thomas Reynolds and later E.A. Woods; from a photograph of the workshop of George Stonehouse of Gateshead (Oxberry 1937: 64-6); from the unnamed firm at Broseley - possibly one of the Southorn family - seen in another photograph (Oswald and James 1955b: 221); and from photographs taken in 1954 at White's of Glasgow (Samson 1954). There is also a description of pipemaking by Fleming (1923: 239-42) which purports to be of Glasgow pipemaking but which is in fact a crib from an article by a pipemaker which appeared in the Daily Mail at the time the last Bristol pipemaking - George's - firm closed in 1921 (Anonymous 1921b) with a few insertions which may or may not refer specifically to Glasgow methods - and in fact, such is the general tenor of Fleming's work, may or may not be true. Pritchard, describing the Bristol pipemaking industry, includes the Daily Mail account (1923: 190-1) with acknowledgements, but there is no evidence to indicate that the description is of George's process in particular, for even the Bristol Evening News account of George's closing (Anonymous 1921a) makes virtually no reference to manufacturing methods - the Daily Mail account is more likely to have been written by a London pipemaker. Lastly, there are brief accounts of the process used by the C19 Market Rasen, Lincolnshire, firm of Watkinson (Hallgarth 1962: 32; 1969: 33-4), and though the second and more detailed of these accounts contains major confusions regarding the wiring and moulding processes - which oddly enough do not occur in the earlier account - there is enough internal evidence to indicate that the description is based on accurate reminiscences of the techniques used.

All these descriptions have a quite close similarity to each other, and all deal with manufacture since about the middle of the C19, or from the beginning at the earliest. McDougall's was founded in 1846, Pollock's in 1879, Hamilton's in 1812, Strong's probably ca.1875 as the last of the family (who died in 1953) was the third generation in the business.[16] Robinson's was in existence by 1769 (although it is not clear to which period the description of manufacture belongs), Christie's was started in 1894 though the parent company in Glasgow was founded in 1857, Reynolds's in the 1850s (the equipment is at least as old as the period 1875-93), while Stonehouse had worked in Gateshead since the first decade of the C20 though his family had been pipemakers in Kingston upon Hull for generations previously. The Southorn family started pipemaking at Broseley in the 1820s - 1823 according to the family, 1829 according to R. Thursfield and taking over the business of Noah Roden (1963: 82) - and the last member was working occasionally until ca.1862 and has recently reopened (see Chapt 1 n.4) (for a discussion of the complexities of the Southorn manufacturers at Broseley see Appendix II). The illustration of manufacturing at Broseley referred to above is undated; a drawing made either from it or of the same worker appears in A.H. Dunhill 1954: 93, 1961 ed). At Rainford, pipes were being made certainly by 1674, but the process described is that of recent times. The Watkinson business in Market Rasen was started in 1843 by George Spencer Watkinson sr, who had learned the trade from his father in Grimsby; the firm was continued by a son, George Spencer jr, after the death of his father in 1885, but subsequently closed. In 1969 the factory was still standing (Hallgarth 1969: 33, lower illus.).

Latterly, the clay used came to McDougall's and Pollock's in granulated form. Prior to WW II the clay was dug out by hand, but during the war bulldozers were used. This was found to include too many impurities with the clay, so from about the early 1950s the clay has been ground. Southorn's continued to obtain their clay unground. Invariably the clay used by pipemakers now or in the recent past comes from Devon. Robinson's appear to have had a local deposit of clay available, but were soon using clay from SW England shipped via Kingston upon Hull; while at Rainford it was shipped via Liverpool or, more commonly, Runcorn. Devon clay was used by Colchester pipemakers at the beginning of this century (Christy 1907: 413). Watkinson's used Devon clay, which came to Gainsborough either by sea or via the Severn and across country by river and canal and was then taken by cart, and latterly by train, the last 20 miles to Market Rasen (Hallgarth 1962: 32; 1969: 33). If Fleming is to be trusted, the blocks of clay that arrived in Glasgow were called "tallies".

The lumps were broken down, cleaned of dirt, and placed in what Fleming calls "steeps" and Pollock's "soakers" (FIG 73) filled with water. When the clay was soaked and softened and had become plastic it was put through a pug-mill, though prior to the use of such a mill the clay was beaten with iron or wooden bars (FIG 74) or "mells" (the term used by Fleming) on an iron block of a table covered with iron plates. White's used an old mixer which had originally been steam-driven. This part of the process at Hamilton's is not described in detail but a picture (FIG 61) of the process there indicates a large bar being used to beat the clay and what appears to be a long-handled bladed instrument being used to cut the clay into slices, presumably for further mixing. As can be seen from the photograph these mixing processes spattered clay as high as the rafters. Watkinson's (Hallgarth 1960: 33) also used an iron bar to beat the clay after it had been soaked; and the Portchester, Portsmouth, firm of Leigh and Co., which was founded in 1840 and continued in business until after WW II, used iron bars in the same way, at least in earlier times (C. Green 1973a). Robinson's simply refer to this part of the process as "blunging" - they probably used steeps or soakers and blunged the clay with a rammer- or spade-like instrument. They prepared their clay with a superfluity of water and appear to have been alone in hastening the evaporation process by pouring the clay into large "evaporators" six or seven ins deep and lighting a fire beneath them - this appears to have been a technique adopted from the ceramics industry (the Robinson family were, unusually for pipemakers of this period, also in the pottery trade (Oswald and Hughes 1974: 169, 170; cf p.247 below)), for an 1827 anonymous publication entitled A Representation of the Manufacture of Earthenware... illustrating the various steps in ceramics manufacture in the Staffordshire Potteries (reproduced in G.W. Elliott 1970: 45 fig 2, and at a much smaller scale in Chapman, Chambers, and Sharpe 1970: 58 pl III.24) indicates this method of reducing the prepared clay to "about the consistence of dough". Shaw, writing in 1829, claimed that these "slip kilns" had been introduced by Ralph Shaw of Burslem in 1732, after which date they began to replace the "sun kiln", which was simply a 16-20 ft square vat ca.18 ins deep into which a layer of blunged clay was placed to partially evaporate in the sun, then another layer added to partially evaporate, and so on until the mass was 12-18 ins deep, after which it was cut out and placed in a damp cellar for use (S. Shaw 1829: 146-7, 157-8, 98, 1970 ed); but slip kilns were in use in The Potteries before 1732, certainly by 1718 when there is a reference to a kiln for "boyling clay" and possibly as early as 1713, when the inventory of a deceased potter notes a kiln for drying, but drying what is not stated (Weatherill 1970: 5 and 1971: 20). According to Shaw (1829: 98, 1970 ed), the sun kiln went back to before 1600 and even when he was writing a few were still used; presses to squeeze water out are known by the mid-C18 (Weatherill 1970: 5 and 1971: 20-1), but it was not until the second half of the C19, with Needham and Kite's apparatus patented in 1856, that filter presses appeared (Celoria 1973: 30-1). However, the slip kiln continued in use throughout the C19 until modern presses were introduced in the earlier C20 (I am grateful to Miss D.M. Griffiths, Ceramics Analyst with the Research Division of the National Historic Parks and Sites Branch in Ottawa for this last information). When the clay had been reduced to a proper consistency it was beaten in the manner described above. With granulated clay the process is simpler, the clay simply being carefully sprinkled with a shovel into the water (FIG 75).

Pollock's, McDougall's, and the Rainford firms (and probably other firms as well, though this is not stated) mixed the soaked clay with scraps (called "spew" at Rainford and by Pollock's) laid down in alternate layers. At Rainford and at Pollock's this mixture was called the "pill" (FIG 74). Pollock's put a layer of scraps down first to prevent the wet clay sticking to the pill. This mixture then went through the pug-mill. A great part of the skill in preparing the clay exactly right for use lies in this mixing and in the time allowed for the clay to blend. These skills are traditional, and handed on; there is no general standard. At McDougall's the process of soaking the powdered clay and putting it through the pug-mill was called "milling", and this clay was cut by the mill into "balls" or slabs, six of which weighed about a cwt.

This clay was then delivered to the workers. From it they took in each hand what Pollock's workers called a "nip" - enough clay from which to form with each hand a pipe of whatever size was currently being made. These pieces of clay were formed into what are generally called "rolls" though the terms "tadpoles" and "blanks" are also known; A.H. Dunhill (1954: 92, 1961 ed) talks of "dummies" at Broseley. The rolling was done with the flat of the hand with greater pressure on the edge farther away from the worker, the pressure increasing as the roll lengthened; this produced rolls with one end - destined to form the bowl - thicker than the rest. The action of the hand was called the "rub" at Pollock's. As each worker had differently-sized hands each had to work out how many rubs he or she needed to form the correct shape of roll for each type of pipe: a heavily-built man might need only half the number required by a slightly-built woman (FIGS 76-78). This again emphasizes the lack of general standards. Sometimes a wooden board was used to finish the rolling: McDougall's called it a "hand board" and used it only for rolling pipes which were to have a heel as without this treatment there was a tendency for the roll to become too thick at the neck which apparently causes the heels to come off subsequently, but Robinson's appear to have used the board simply to finish off the roll and make it straighter. The rolls were then placed on what McDougall's and Strong termed a "dozening board" (McDougall's also called it a "bench") and Pollock's called a "bunch board" (FIG 77) - at Watkinson's it is recorded they were placed in two rows of eight (Hallgarth 1969: 33) - and set aside until they had dried to a certain consistency in a hot air room (FIGS 79, 66). Again, this consistency was judged by experience, not by any set test.

After this, the rolls were dipped in water - the reason given by the anonymous observer of Strong's methods said this was because in the drying process the pipes had stuck to each other, but Pollock's have the more likely answer, that it was to make them pliable: it is impossible to dry them to the exact consistency and therefore easier to slightly over-dry them and then wet them. The end of the stems was then cut off with a "knife", a blade set in a handle as at McDougall's, or else simply nipped off with the fingers, as at Pollock's; and the rolls were ready to have their bores made (FIG 80). This was made with a "wire", often a simple implement such as a metal knitting-needle with its end blunted and slightly widened (FIG 81,h). Pollock's called this end the "button". Reynolds's wire is catalogued at Birmingham as a "moulding wire", a very old term dating to the C17 (see below). The widened end made withdrawing the wire easier, but also helped in inserting the wire - McDougall's workers demonstrated to the writer by using the pointed "finishing wire" (see below) that it is extremely difficult to pull the clay over a pointed end. The blunted end also made a cleaner hole when penetrating to the bowl. (This writer has seen only one wire which did not have the widened, blunted end - this is the wire in the collection of pipemaking equipment given to the City Museum and Art Gallery, Aberdeen, by the local firm of John Auld, a tobacconist (and presumably pipemaker) at the beginning of this century.)

The process of making the bore was always done by pulling the stem, or "shank", over the wire, not by pushing the wire into the clay which would tend to pierce the side of the roll (FIG 82). The progress of the wire through the shank was followed by feeling the button's progress. This facility is gained by experience - one of the workers at Pollock's said that when she first started pipemaking she had been unable to feel the button. The wire is lubricated before use - McDougall's used a mixture of paraffin and whale-oil, Pollock's paraffin and rape (colza) oil. No specific proportions are used, and the particular mixture used appears to be entirely traditional.

The wire was inserted to a point just short of the head of the roll which was to become the bowl, and the wired roll placed in the mould (FIG 83), normally a two-piece one (FIG 84), which was lubricated with the same mixture as that used for the wire. This was then placed in a "chest" or vice; Hamilton's called the part which actually took the mould the "runner". The chest was then closed (FIGS 85-86). Hamilton's called the handle of the chest a "flying handle" and the attachment of the handle to the chest they called the "box". "Runner" and "box" are both C17 terms (see below). In the press at Pollock's a "slot", a sheet of metal, was used to face the wooden walls in the vice: To have had metal walls would in time have damaged the metal moulds, but to have wooden walls alone would result in the mould damaging the wood. The chest with the pipemaking apparatus in Winchester Museum, which is from the C20 firm of Leigh, Portchester, has attached to the moving metal face a pad comprising a strip of wood, a strip of pasteboard, and a sheet of metal. There are close parallels here to the procedure used by Dutch and French makers and described by Duhamel du Monceau.

The chest lies against the instrument which formed the bowl, an instrument known at Rainford and at Pollock's as a "head and handle". The entire piece of equipment, chest included, is catalogued at Birmingham as a "gin", and Hamilton's talked of the "gin handle" and the "gin head" (FIG 87). The auction poster listing the effects of the Church pipemaking firm of Pentonville, London, in 1884 also refers to "ginheads" (original poster in possession of Miss E.J. Church, copy in possession of this writer). The head is a solid block of wood at one end of the chest against which the end of the mould lies and to which the handle - a lever - is attached by a large pin. (Gin is merely a variant of the word engine in its older, less technical, sense, so that here it really means simply a piece of equipment.) McDougall's had no particular name for this item. Attached to the handle was a free-swinging "stopper" (the Church auction poster refers to this tool as a "plunger"), a finger-shaped piece of metal which descended in a continuously-vertical position into the head of the mould to form the bowl when the lever was pulled down (FIG 86). Each mould has its own stopper, and the mould contains all the decoration and lettering, if any, for the particular model of the pipe. When the stopper is removed, the wire is pushed fully home to complete the bore to the bowl and the top of the bowl is cut off by the knife, using a slot near the top of the mould for the purpose (FIGS 88-89). (As noted above, Hallgarth (1969: 33) completely misunderstands the wiring and moulding processes at Watkinson's: he says that the wire was "rolled into the stem", that "an iron box press or mould" was used to shape the stem, and that the stoppers "were the matrices for the many different [bowl] designs". The wire could certainly have been rolled into the stem (shades of the aberrant Diderot description noted on p. 90 above), while the reference to "an iron press or mould" appears to be a telescoping of the functions of two separate pieces of equipment, the chest and the mould. The stoppers, of course, though forming the bowl, were not matrices for the bowl designs, the latter being imparted by the mould. Curiously, Hallgarth is correct in his earlier, briefer, description (1962: 32), where he simply says "Metal moulds were used for the final shaping, including the embossing of a pattern, with maker's name or initials, on the bowl".)

The part of the process so far described appears to be generally called "moulding" - unlike the situation Duhamel du Monceau describes, where the rouleur and mouleur are different people. It may merely be, of course, that in the present attenuated state of the industry the luxury of specialists to this degree can no longer be afforded. Pollock's had not heard of the term "roller" for the person making the rolls.

The newly-moulded and still-moist pipes were then removed from the mould and stacked with the others to dry further. Strong is said to have removed the wire before taking the pipe from the mould, but it seems that the opposite sequence was the normal process. When the correct dryness, as judged by experience, had been reached, the pipes were taken for "trimming" (Hamilton's and the Daily Mail reference) or "finishing" (McDougall's and Pollock's) or - the term apparently used at Robinson's - "dressing" (FIG 65). Various tools were used (FIG 81). McDougall's used a "finisher's knife", a "smoother", and a "finisher's wire". The finisher's knife was a simple blade, often originally an open razor or a table-knife, with two differently-sized curved notches in the blade, the larger to trim the mould-lines off the bowl, the other the stem. Different knives had differently-sized pairs of notches for different pipes (FIG 81,a,c,f). In fact, however, the correct-sized notch for the correct pipe was seldom available, and the McDougall's workers were using the straight back of the knife for trimming. With this implement the line of clay along the mould lines was removed (FIGS 90-91). The smoother (FIG 81,b,d,e) was a small bar of metal also with two differently-sized grooves on its lower side, and was used to rub smooth the areas scraped by the finisher's knife (FIG 92). The finisher's wire was used to check that the bore ran through to the bowl, and to poke free the "dottle" (as it was called at McDougall's) or "pep" (as Pollock's called it) - the piece of clay pushed into the bowl ahead of the moulding wire. It was also put in the pipe during trimming to prevent bending or breaking (FIG 93). The spew (trimmings) were collected for mixing with the fresh clay. When McDougall's were in full production, one "trimmer" finished the products of two moulders.

There were, however, variants of both tools and methods used in trimming. Pollock's did not generally use a finishing wire to clear the dottle or pep because they found that if the correct length of wire for making the bore was used, the pep would stick to the side of the bowl opposite the bore when the wire was pushed fully through, and thus be effectively removed. However, they did use a "finishing wire" to stiffen the still-moist pipe when it was being smoothed and finished, in which manner McDougall's also used it.

J.F. Chalkley, in an article which set out to strongly attack Harrington's theory of dating pipes by their stem bore diameters (see I: II(b)) but which in fact wandered over a large amount of irrelevant material, described the uses of a number of pipemaking tools in Birmingham City Museum and Art Gallery (Chalkley 1955a). These are illustrated in FIG 94. Unfortunately, the scholarship of Chalkley's article, and that of a subsequent, even stronger, one (Chalkley 1955b), is such that one cannot accept his statements merely because he claims to be an expert in these matters.

He says that a board, called by him a "rolling and/or stacking board", and catalogued by the Museum as a "hand board", was used as a guide for the size of the roll. The thickness of the board, he says, was used as a guide for the diameter of the head, and its width as a guide for the length of the tail. These uses seem unlikely, for the size of the rolls always seems to rely on the skill of the worker, not to any scale set by some object. Further, to use a board in this manner would necessitate a different board for each size of roll.

The wire Chalkley calls a piercer (as already noted, the Museum catalogue calls this tool a moulding wire, so Chalkley is not taking his information straight from this source). Piercers, he notes, come with many varieties of "heads" (as he calls the button) - flat nail heads, ball heads, fluted, spoons, and cones.

The knives he calls "scrapers"; this term is also used by the Museum catalogue. Object b is catalogued as a "head tool", which suggests something to do with finishing the bowl; Chalkley alleges it is a tool he calls a "hook", analogous in use to the hook on the end of the French estriqueux, used to remove the dottle (or as he calls it, pep - Pollock's term). It is most probably a tool similar to the Dutch smoier.

Object d he calls a "scraper" but with the specialized task of rounding off the lip of the bowl. The writer has seen a similar tool (FIG 81,g) in the reconstruction of the Christie workshop in Edinburgh, but its use is not stated. The Birmingham Museum catalogue, however, calls it a "shanker", which if correct would indicate it was used on the stem as a smoother (the pipe-stem is known as the shank in Britain; and as already noted the terms schenker and schenkertje - the suffix denotes a diminutive - are used for specialized finishing tools at Gouda and the term Schenker is used in the Westerwald for the same Dutch tool.) Further, virtually all C19 British pipes - and indeed earlier pipes, going back to ca.1700 as will be noted later - have a flat top to the lip of the bowl made by the knife as already described, so that the use of this tool to round off the lip of the bowl seems unlikely. That smoothing tools of the same shape as the obsolete Dutch smoier or the Dutch and German shankers - a round-sectioned wire or thin bar, straight with a sickle-shaped end and set in a wooden handle - were known in Britain is indicated by one being among the pipemaking equipment in the City Museum and Art Gallery, Aberdeen, belonging to the local turn-of-the-century firm, John Auld. Auld also had a conventional smoother made from a metal bar similar to those described earlier, and with the two grooves on one side at one end; in this case, however, the other end had been shaped into a handle.

Object g is another scraper according to Chalkley, used to scrape the inside of the bowl when necessary as the use he ascribes to the previous tool tends to leave a ridge inside of bowl. As his ascription of the previous tool is dubious the use of this one may similarly be doubted, though on the face of it some such use on the interior of the bowl for the tool is possible. The writer has not seen this tool elsewhere, but a large-bowled 25-ins long stem Southorn pipe (the same as "no 74 Long Broseley 'Churchwarden' 25 Inches Long Tips" illustrated in a post-1871 catalogue - see Appendix 11) at Blaise Castle Folk Museum, Bristol, has the inside of its bowl scraped in this manner, and Birmingham is only 27 miles from Broseley. The tool is catalogued by the museum as a "cutting off tool", which if correct does not make its purpose clear. Lastly, objects c Chalkley says are smoothers, which is probably the case, though they appear from the photograph (the objects cannot now be found in the museum) to be simple ungrooved circular-sectioned bars.

Chalkley refers to the head and handle as "the 'long-arm' stump-cum-vice". The stump is the stopper, and the term may be a corruption of the latter, but unfortunately all Chalkley can say about earlier stumps is that they were inserted by hand without a lever and were often very small. This last he says reflects the child labour often used, but to this writer it would appear more likely small stoppers simply reflect small pipes and the initially high cost of tobacco (see 1: V and VI).

Moulds, Chalkley says, were of brass and could last three or more generations - he mentions but does not name a maker then (in 1955) using C18 moulds. (Pollock's still - 1968 - use some iron moulds which are originally C18 in date. One is believed to date originally to 1715.) Presumably Chalkley is referring to early moulds when he says they are of brass, for all modern moulds are of iron. Benham (1906) quotes the last Colchester pipemaker as saying C17 pipes were made in wooden moulds, and Gant (in litt. 31 August 1970) believes that "mulberry" and "fleur de lys" pipes with these decorations on the bowl (cf Oswald 1960a: 41, 50) which he has from Colchester come from a wooden mould, but no documentary evidence of such moulds are known to this writer (cf below). A "Tinn" mould was to be given to a Southampton pipemaker apprentice at the end of his term, according to his enrolment entry in 1658/9 (Willis and Merson (eds) 1968: entry 908 and p.lxv).

Kingsford-Curram (1968: 89) says substantial metal moulds last as long as 30 years: Parsons, on the other hand (1964: 232 n.4, 247), notes that a life of ten years has been suggested for a mould though there was probably some difference between the life of brass moulds, used in the C17, and iron ones, used in the C18 and later centuries. An observer in 1832 (Weld 1832: 514) noted that iron moulds lasted "for several years, but ultimately became worn and imperfect: the vice screws last only about two years without repairs", which suggests the moulds generally lasted for longer than two years but probably not longer than say, about ten. This problem will be returned to later.

After the trimming process the pipes were placed in racks (FIG 95). If the pipe was to have a curved stem it was here that the stem was curved, the racks being deep enough to take the curve; planks are then put across the stems to hold them. At Hamilton's, Pollock's, and Robinson's and at Rainford the pipes were then taken to a drying room - Hamilton's called this part of the process "stoving"[17] - before they were fired in the kiln (FIG 66). If the weather was suitable Hamilton's put their pipes in the sun to dry (FIG 64). According to Pollock's most of the warping which occurred, particularly on long stems, took place during this drying, not during the firing. They placed planks across the stems during stoving (FIG 96) to minimize this. Southorn's fired their Churchwardens "green" - that is, unstoved - but stoved their cutties, the only time such a differentiation is recorded. A.H. Dunhill, noting the pipemaking process at Broseley (presumably Southorn's), says the longer pipes were moistened before firing (1954: 92, 1961 ed) - this may be a variant method, but it is not that described to this writer.

When stoving had brought the pipes to the right consistency they were taken for "potting" - being placed in fireclay (or, at Robinson's, iron) saggars. Once again the correct consistency is a matter of tradition and experience. At Pollock's the bench on which the saggars were placed when they were being filled was called a "potting stool". Different saggars were used for different pipe-types. McDougall's and Pollock's both used circular saggars with bottoms for their cutties (FIG 97). The pipes were laid in overlapping circles with the mouthpieces to the centre and the bowls downwards for several rows, then the next three or four rows were put in with the bowls downwards in the centre and the mouthpieces at the circumference of the saggar - this alteration achieved maximum use of space. Formerly McDougall's had stacked their cutties round a central cone.

The saggars used for Churchwardens were quite different, and also differed among firms. McDougall's used rectangular saggars with bottoms. Southorn's used rectangular bottomed saggars shaped something like a hump-backed bridge (FIG 98), presumably designed to follow the curve of the stem, and set the pipes in ground-up fired pipeclay (visible in the illustration) - this last part is similar to that sometimes used for very long pipes at Andenne, and analagous to the Gouda practice described by Duhamel du Monceau. Pollock's however, used a bottomless circular saggar (FIG 99); the bowls rested on a ridge round the inside of the saggar at the bottom and a wooden "stand" was used to hold the stems, which were arranged conically, until there were enough pipes in the saggar to support each other. Sometimes a loop of fired pipeclay was placed round the stems at their top to keep them together (FIG 100).

Pollock's described a primitive stand which comprised a lump of clay standing on four long-stemmed pipes: an example is in the Bristol City Museum, apparently from the Water St-Hollister St kiln of the John Okely F 1732 and noted in 1739; and another example - using three pipes - was discovered on the site of a Colchester pipe kiln apparently dating to the first third of the C18 (Gant in litt. 13 and 14 November 1968). According to Pollock (in litt. 14 March 1968) Strong of Leeds used a very primitive method of firing his pipes - the pipes were simply stacked up round a stand inside the kiln and no saggars were used. This method was certainly used by Flanagan of Leicester last century who worked in very primitive circumstances - his production methods are described later. At the Manning kiln in Boston, which was in use ca.1850-1919, saggar remains occur only after a ca.1860 level, the earlier levels producing instead fragments of clay rings which were apparently used to hold together a stand of pipes by supporting their bowls - many of the fragments showed impressions of identifiable bowl decoration. This suggests that prior to ca.1860 pipes were simply stacked up, perhaps round simple clay props such as those found at the site, and fastened at the bowl - and probably also at the stem ends - preparatory to firing; and in describing the Boston material the excavator cites evidence from six pipe kilns known in Leeds where evidence suggests that saggars were not used there either until about the 1860s (P.K. Wells 1970: 24-5 and 27 n.2). This would certainly agree with

Pollock's evidence on Strong's methods.

According to Fleming, black clay pipes - sold to negroes - were produced by placing coal-dust in the saggar, the smoke from this colouring the pipes in the same way as did smoke from the sawdust used at Forges-les-Eaux in France, at Andenne, and in the Westerwald. A.H. Dunhill (1954: 92; 1961 ed) describes the saggars used at Broseley, commenting that the shape was to take the curved stems, and talks of the pipes being "treated with China clay dust" while in the saggars and before firing - this may be a misinterpretation of the use of pipeclay dust noted above.

The saggars were then taken to the kiln, where they were stacked in what Pollock's call "staunches" - stands of saggars one atop the other. At Pollock's a "strapping" of green clay was used to seal the top of one saggar to the bottom of the next to prevent the flames (not the smoke) reaching the pipes (FIG 101a,b) - this was not done at McDougall's though both firms covered the top of the topmost saggar. McDougall's, Pollock's, Christie's, and latterly the Rainford manufacturers all used a downdraught kiln, and all appear to have been very similar in size and appearance, being built of brick and reinforced by encircling iron bands, with a doorway, and the fires round the outside (FIGS 102-104). (Hamilton's kiln looks at first sight very similar, but though it is not possible to see from the photograph (FIG 67) whether there were flues in the floor, pipe-fragments visible suggest a solid floor; and there appears to be a chimney at the top. It is also unclear where the fires were as the kiln is built into a corner.) At Rainford other types of kiln were also used, and according to Berry the bottle-shaped updraught "Belgian" kiln was the most common at one time. (Belgian kilns were only invented ca.1840, by the Belgian engineer Boetius. FIG 105 indicates its principle (Larsen, Riismøller, and Schlüter 1963: 366, 378-9).) A bottle-kiln was used by Southorn's (FIG 106) and probably by the previous owners of the premises, Smitheman's, from whom Southorn's took over the buildings in the 1920s. (It may also have been the type used by George's of Bristol, according to the recollections of a daughter of the last George pipemaker).

Some manufacturers at Rainford used two types of kiln, one specially for firing Churchwardens; Southorn's did similarly. The Rainford Churchwarden kilns had double walls and were updraught with the fire between the walls and the saggars on shelves in the inner chamber - in other words, a muffle-kiln.

The kilns used by McDougall's, Pollock's, Hamilton's, and at Rainford stood ca.10-12 ft high (FIG 102) - the normal, it seems, for this type of kiln - and a staunch was ca.10-11 saggars high. This size of kiln could take 300 saggars. The fires, as already noted, were round the outside, and inside there was a kind of baffle, called a "bag" at Pollock's, to keep the direct flame from hitting nearby saggars (FIG 107) (cf Brears 1971: 141). Coal was used as fuel, but the type of fuel was decided by economics rather than the type of firing obtained from various fuels. The blocking for the door was called "breast slabs" at Pollock's.

Although Hallgarth's description of Watkinson's kiln (1969: 33) is not entirely clear, it appears this firm used a simpler kiln essentially the same as the medieval double-flue kiln. This would have been an updraught, with the fires in the two five-foot long flues Hallgarth mentions, these flues going underground into the kiln (I am indebted to Miss D.M. Griffiths, Ceramics Analyst with the Research Section of the National Historic Parks and Sites Branch for a discussion on Hallgarth's description). According to Hallgarth, the kiln had nine-inch thick walls which gradually thinned as the kiln widened towards the top; the photograph of Watkinson's factory in 1969 (Hallgarth 1969: 33 lower illus.) indicates the kiln was inside and on the ground floor of the two-storey brick building, the workshops being upstairs. At McDougall's, when in full production, firing was done once a week, usually on a Wednesday. The bricking up of the door was done on the Tuesday evening and the fires lit at five or six a.m. next day. McDougal's fired to ca.940°C, Pollock's to 950-75°C, and at Rainford pipes were fired to 960°C. (Berry says 960°F for the last figure but this is an error.) Pollock's said that they always considered their firing temperatures to have been higher than the average in the industry (though it is lower than the 1,000°C used at Gouda at present and very much lower than the 1,100°C used at Courtrai and also at Andenne when pipes there were being made for smoking - Andenne now produces only for shooting-galleries and fires these pipes to 1,200°C). At McDougall's the desired temperature was generally approached about seven hrs later, though adverse wind conditions or an incompletely-cleaned flue could cause considerable delay. However, generally by mid-afternoon the furnace was allowed to cool naturally (though it was said it could be cooled a great deal faster without damaging the pipes by opening a vent in the roof) and the pipes were removed on the Friday.

There may be some confusion arising from the literature about the time taken to fire the pipes. Berry, for example, discussing the process at Rainford says that the pipes were "fired for eight to ten hours at a temperature of 960°F. [sic - °C]". This does not mean that the pipes were held at that temperature for that time; the temperature is the maximum attained and the time that of the whole firing process. Fleming similarly says that pipes were fired for 10 to 12 hrs at 500 to 600°C, but here in addition there appears to be another of Fleming's many errors, for at that temperature the chemically combined water would only just have been driven off and the clay would have been very brittle (Rhodes 1957: 16, 1973 ed). Twelve hrs is the time recorded for Hamilton's, and for the firing at White's of Glasgow (Samson 1954: 12), while Watkinson's usually fired their pipes for 11 to 13 hrs, depending on the quality of the coal used (Hallgarth 1969: 33). At Broseley the firm of A. Smitheman and Company fired their pipes for 12 to 24 hrs (Randall 1908: 442). However, at Colchester at the beginning of this century firing was accomplished in some 5 hrs - this was in a coke-fired muffle-kiln (Benham 1906).[18]

Shattering of the pipes could occur if the last-made pipes put in the kiln had not been dry enough. For this and other causes of wastage, a pipemaker's gross was generally 192 - 12 dozens of 16 - in the rolling process, gradually being reduced until by the end of the process the number was down to 144. As noted above (p.198), Watkinson's made their rolls in bunches of 16. The arrangement varied, however - McDougall's latterly made their rolls in bunches of 12, not 16. Fleming talks of a pipemaker's gross being 200.

The kilns each had their own particular idiosyncracies, certain parts being "softer" - cooler - than others, and Hallgarth, noting (1969: 33) that the packing of pipes in the kiln called for considerable skill and experience, records that at Watkinson's this was usually done by the master himself. Pipes destined for export at McDougall's and Pollock's were placed in the hotter parts of the kilns as this made them stronger and less liable to breakage; however, it also made them less porous, which made for a hotter smoke. Underfired pipes were set aside for refiring. At Rainford two trial pipes were abstracted from the kiln and rattled - the sound indicated whether the pipes were sufficiently fired or not (the differing tones of struck pipes which had been fired at different temperature were demonstrated to the writer at Pollock's.) At Rainford they then broke one of these pipes as a further test of firing. Watkinson's also withdrew a sample pipe from the kiln to check the brittleness (Hallgarth 1969: 33); and there is a reference to George's, the Bristol pipemaking firm, taking a pipe out of the kiln on a long rod to see if the pipes were fired (Anonymous 1921a).

Generally - though not at McDougall's - the mouthpiece of the pipes was coated to prevent its sticking to the smoker's lips. Pollock's use a red spirit dye. Strong is said to have used a paste of soap, wax, gum, and water to coat the mouthpiece; this mixture is the same as that noted by Duhamel du Monceau as being used in north France for the same purpose and also to give a finish to the pipe, and is closely similar to the mixture used at Gouda, Brandenburg, and Andenne for the same purposes. An alternative but very similar mixture was one of fat, clay, and water. Robinson's used a solution of red lead and the stems were then put in a clear red fire, which gave them a bright green glaze. Southorn's at one time also used a green lead glaze, but abandoned it for a different material of the same colour to eliminate the possiblity of lead poisoning. (Green appears to have been their traditional mouthpiece-colour - the writer saw examples with green mouthpieces at Southorn's Broseley factory in 1968 and in the Official...Catalogue of the 1851 London Exhibition (vol II, 725) notes the Southorn pipes there had similar mouthpieces.) Pipes made by George's of Bristol were also tripped in green (examples in possession of descendants of the George family seen by the writer), and the C19 Bristol firm of Ring is known to have used a clear green glaze (Simard in litt. 5 May 1972; see 6: VII(b)(4)), while stem-fragments with mouthpieces glazed in green, yellow, and a very light green-yellow were recovered during urban renewal in Lamb St, part of the St Jude's pipemaking ghetto in Bristol last century (see 6: VIII). Watkinson's, though they did not always apply it to their products, used red lead or potassium permanganate, fusing the glaze by heating the pipe on a coke brazier (Hallgarth 1969: 33-4). Red sealing-wax was used at Colchester at the beginning of this century to tip the more expensive pipes (Benham 1906). One source (Anonymous 1921b) said that makers used to tip their more expensive pipes with wax: this had formerly been done by heating the mouthpiece in a stove and rubbing with a stick of pipe-wax, generally red, but latterly a mixture of dissolved wax and methylated spirits was painted on. (Fleming, who at this point is following the description from the Daily Mail word for word, gives the colours as vermillion or emerald green, so possibly these were the colours he had seen in Glasgow.)

No modern British pipes approach Dutch pipes in their finishing, and it seems that few British makers attempted to give their pipes any real finish. According to information from Southorn's, the famous Broseley finish was obtained by polishing the pipe with "an amber-coloured substance" (probably a piece of amber similar to those used on the Continent) before firing, but no further details were available. McDougall's varnished their more expensive pipes - which were made of kaolin, not ball clay - with shellac; White's of Glasgow are also noted as varnishing their pipes and also sandpapered them as part of the finishing process. The products of John and Flower Hunt, Bristol pipemakers in the 1650s and 1660s, have a stroke-burnished finish for example, as do the famous Gauntlet pipes of the mid- and later C17 (see 3: I); and the same finish occurs frequently in the later C17 and earlier C18 on Bristol pipes as well as those produced at Marlborough (Atkinson 1965c: 92, rev ed 1969b) and Salisbury (Atkinson 1973: passim) in Wiltshire.

The firing of pipes laid in coal-dust in order to colour them has already been noted, and Fleming also notes that pipes could be glazed in the manner of pottery - this would make for a very hot smoke as the pipe would now be non-porous. He also notes that the pipes blackened by being fired in coal-dust could be waxed to imitate Irish bogoak. Harley (1963: 19) notes a J. Harrison, who made pipes at the back of the Gipsy public house in Highgate, London, at the beginning of this century, produced pipes with a black-lead finish which he was supposed to obtain by using graphite mixed with the clay: Harley believes, however, that it was almost certainly manganese dioxide which Harrison added. Graphite, being a form of carbon, would presumably burn out when the clay was fired, if it were mixed with the clay; but manganese dioxide does not seem a very likely additive either, for it would give a grey-brown colour with more of less prominent specks unless combined with iron, copper, or cobalt, in which case it would indeed give a black colour (Rhodes 1957: 45, 1973 ed). There seems no reason, however, why Harrison should have gone to the trouble of a complex additive; he probably fired his pipes in coal-dust as at Glasgow or oak sawdust as at Forges-les-Eaux or deal sawdust as at Andenne as noted above to obtain this finish. At Forges-les-Eaux a polished-black finish was obtained by coating pipes already mat-black from having been fired in a saggar of oak sawdust with graphite and polishing them with a cloth (see Section I above).

Harley also notes that another London contemporary, Crop, devised a method of producing new pipes with an amber colour similar to that of seasoned clay pipes and which would retain this colour through the process of refiring used to clean fouled pipes. (Refiring normally removed the light-brown seasoned colour as well as the fouled material.) When the last Crop retired he took with him the secret of this process, as well as destroying all the old family moulds. Harley gives the date of Crop's retirement as ca.1910 but Fresco-Corbu (1964: 1289) gives a date of 1924; the last appearance of the name in the London trade directories is in 1924. Whether these stories are true or not - unsmoked Crop pipes seen by this writer have a slightly mellowed colour but this appears to be made by a simple application of a varnish - the firm's products were of superb quality, and their elaborately-moulded heads appear as good as those of Gambier and Fiolet. (The Crop business is further discussed in 4: VI; for a discussion of the Gambier manufacturing process see Section I above).

Pollock achieved a much deeper mellowing on certain non-traditional pipe forms among his products by varnish (the three examples at the foot of FIG 108 - the rt-hand example is particularly pleasantly coloured). To facilitate varnishing the pipes are hung on a nail-board (FIG 109, showing unvarnished bowls of pipe referred to above).

According to one source (Fairholt 1859: 173), it was the Dutch who began to wax the mouthpieces of their stems, and in view of their sophisticated manufacturing techniques and products, this is possible. Other sources (Cassidy 1895: 18; T.P. Cooper 1907: 108, both probably based on Fairholt) noted that the long-stemmed "Alderman" pipes with glazed or waxed mouthpieces appeared ca.1700. A poem written in the second quarter of the C18 (quoted in Fairholt 1859: 143 and Mackenzie 1957: 196) notes that pipes had waxed mouthpieces. (For a fuller discussion of this poem see Appendix IV). Jewitt (1878: I, 298) credits a member of the famous pipemaking family of Southorn at Broseley, Edwin Southorn, with introducing the glazing of mouthpieces, but Jewitt's account of the Broseley industry seems confused and contradictory in parts - Oswald and James (1955a; 1955b) do not record an Edwin Southorn - and it seems likely that Jewitt is inaccurate here (cf Appendix II). However, so far as the writer knows, both from considerable first-hand experience and from an extensive series of sources, glazed or waxed mouthpieces are extremely rare on C18 sites - one waxed example was found in a 1755-60 context at Louisbourg, Nova Scotia (I. Walker 1971c: 70, 71), while a few waxed, slipped, and glazed mouthpieces came from a rubbish-dump at Rosewell, Virginia, datable to between 1763 and 1772 and probably to the latter year (I. Noël Hume 1962: 221; cf 1970c: 302). Glazed mouthpieces, however, are quite common on C19 sites (I. Walker 1970a: 104, 103; 1971d: 31, 32 pl 5 figs 4 and 8).

Among material excavated at a Norwegian pipe factory opened in 1752 and continuing until towards 1800 was a mouthpiece with a blue glaze (Pettersen and Alsvik 1954: illus. on p.47), and a price-list for this factory's products in 1767 lists (ibid. 38, 53) one of the 13 styles made as having a blue-glazed mouthpiece and being a pipe of "English type" (the factory made pipes in both English and Dutch bowl shapes). Thirteen pipe types were also recorded in production in 1754, and approximately that number of styles were found among the material excavated, but whether the glazed mouthpiece was this early is unknown. However, one of the Rosewell specimens had a bluish-green glaze, flecked with light brown or orange, which might indicate the Norwegian pipe was indeed closely following English pipe fashion. (The term glazed pipes unfortunately also refers in the C17 and C18 to pipes with a glossy polish - this is discussed in detail above and below - so that I. Noël Hume's reference to glazed pipes in 1764 (1970c: 297) and another reference to "long glazed pipes" of apparently about the same time (P. Miquelon 1971: 99) need not be to glazed mouthpieces. Rather earlier, in 1731, a Stamford alderman, Robert Collington, setting up a pipemaking business with "the best of workmen from London", announced he would supply "tobacco pipes of all sorts, both glazed and plain" (issue of the Stamford Mercury for 5 August 1731 in P.K. Wells files) - this in all probability does refer to a polished finish.)

It is said (G.C. Spence 1942: 62) that in taverns it was the custom to hand pipes around, and - perhaps in deference to the uncertain standards of hygiene then prevailing - to break off the end of the stem after a person had used it. I. Noël Hume (1970c: 301-2) describes this story as a fallacy and "Broadly speaking...nonsense", reasoning that the mouthpiece was made to taper so that the lips could close over it easily and that a broken and thicker end would be unpleasant in the mouth, and that a number of broken ends had been carefully filed or ground down to form a new, tapered, mouthpiece which could scarcely have been done when pipes were casually handed around. The story of biting off the stem-end during communal smoking may indeed be fictitious, but not for Noël Hume's reasons; for George Ewart Evans (see below) records a Suffolk informant recalling that "if the stem broke they'd smoke it even if it were only an inch long" (G.E. Evans 1960: 82, 1967 ed) and a recent correspondent to The Scots Magazine (vol 103 no 6 (n.s.) (September 1975) 659) recalls the "jaw-warmer" - a clay pipe with part of the stem broken off so that the bowl fitted close to the cheek - as the favourite of the building-trade labourer in the Coatbridge area near Glasgow, while this writer himself has observed clay-pipe smokers using pipes whose stems they progressively shorten either deliberately or accidentally regardless of any inconvenience from a rough end in their mouth and has also observed untapered stem fragments from C18 contexts bearing teethmarks. Further, the filing or grinding down of ends noted is almost certainly to fit a wooden or other stem over the remaining stub in order to continue using the bowl.

A common way to prevent the stem from sticking to one's lips is said to have been to dip it in beer for a few moments (Cassidy 1895: 18). The writer knows of one octogenerian in Farmborough, near Bath (FRONTISPIECE), who in 1968 was using what was perhaps a variant of this, soaking new clay pipes in beer. George Ewart Evans notes this same tradition in Suffolk at the beginning of this century: one of his informants, born in 1888, recalled

> There used to be a kind of competition among the customers [in a pub] to see who had the blackest pipe. This is what they used to do: as soon as they bought a new-clay they'd soak it in their beer. Then when they smoked it the pipe would turn as black as your hat. They'd be unwilling to part with it when it got like that; and if the stem broke they'd smoke it even if it were only an inch long (G.E. Evans 1960: 82, 1967 ed).

A possibly similar use of hot tea has also been noted (R. McDonald *in litt.* 21 March and 30 April 1971).[19]

The final part of the production of clay pipes is the packing. This is done in various substances - wood shavings, chaff, or straw, for example - depending on the tradition of the firm. McDougall's used wood shavings (FIG 110) while a box of pipes made by Gisclon of Lille, France, and a crate of Southorn pipes, both in the Priest's House Museum, Wimborne Minster, Dorset, indicate that Gisclon used chopped straw and chaff while Southorn used ordinary straw (FIG 111). Thomas Carlyle, writing from London in 1840 and asking a friend to have sent him pipes made by the firm of Thomas White in Edinburgh, noted that particular care should be taken with the packing, observing that previously he had ordered some from an unnamed Glasgow firm which had been sent in a deep box and packed with sawdust instead of a shallow box and packed in fine hay, resulting in only about 45 pipes surviving out of five gross (quoted in Fleming 1923: 244-5). Fleming also quoted (p.246) a worker with over 30 years' experience at McDougall's as saying, a propos of Carlyle's remarks, that he had never known Glasgow makers use sawdust and that a deep box would carry its contents far more safely than would a shallow one. Flanagan of Leicester simply used paper, but he appears to have done his distribution (through his wife) by hand, using a large wicker basket on wheels.

About the middle of last century, Stephen Chamberlain Rand, the last major Colchester pipemaker, made his rounds in a large cart, his pipes arranged on end in large baskets and casks. "Considerable knack was required" it was observed, "to arrange the pipes in the baskets so that they might escape injury when the cart went jolting over rough roads" (quoted in Christy 1907). Gant (in litt. 16 April 1968) quotes an elderly gentleman remembering the last Colchester pipemaker of all, J.F. Jennings, doing his rounds similarly in a pony and trap with the pipes set stem downwards in a basket of sawdust, their bowls "sticking out like flowers." In Lincolnshire in the second half of last century pipes were packed in straw in barrels and cases and taken round by horse and cart (Hallgarth 1969: 34); and when the business of Ebenezer Church of Pentonville, London (see 4: VI), closed in 1894 and the "stock, plant and utensils" were put up for auction, among the items listed (poster in possession of Miss E.J. Church, copy in possession of this writer) were a "Covered Van, Cob and Harness", indicating the business had delivered by horse - particularized later in the poster as a "Capital bay" - and van. The firm's 1879 price list indicates payment was COD within London, suggesting this was the area covered by the horse and van; customers outside London (see below) had to send payment with their order. The last Boston pipemaker, Joseph "Pipey" Manning who died in 1919 at the age of 70, is still remembered by some local residents as a tall man wearing a 10-gallon hat and pushing a barrow loaded with pipes round the public houses and shops (P.K. Wells 1970: 21). Fleming, writing in 1923, recalled pipe-hawkers in Glasgow making their rounds of public houses every Saturday morning "with their peculiarly shaped baskets slung on their backs stacked full of pipes" (Fleming 1923: 237); and the Chesterfield and Bolsover firm of Robinson, which continued well into the C19, had at one time an output of ca.500 gross weekly which "was largely sold to hawkers with wide-handled baskets, who peddled the goods in the neighbouring villages" (Robinson and Spence 1937: 144). An elderly Bristolian who lived in the St Jude's pipemaking ghetto in Bristol as a youngster recalls that at the turn of last century there the pipemakers took their wares round the local public houses in large baskets (see p. 750 below).

G.C. Spence (1942: 53) also recalled seeing hawkers tramping the lanes of Cheshire balancing large wicker baskets of pipes on their heads, selling at local markets and supplying inns and village shops. The Macclesfield firm of Turpin and Sons, which had been founded in 1840 and ceased pipe-manufacture in 1927 though it was still selling its stock when Spence was writing, used to supply its customers - tobacconists, grocers, but especially innkeepers - by making three-day trips in a high open box-cart three or four times a year, the rounds covering large areas of Cheshire, Staffordshire, and Derbyshire (G.C. Spence 1942: 57).

In 1739 a Hudson's Bay Company representative at York Fort (York Factory, Manitoba, on the west shore of Hudson Bay) wrote the Governor and Committee of the Company in London that

> in eighteen gross [pipes] received from England, we shall not have much above twelve gross, the rest being so short that they are of no service. With submission to your honours, if they was [sic] put in a cask or larger boxes with more straw between each lay, it would preserve them very much from being broke (quoted in Nicks 1970: 44 n.)

indicating pipes at that time were being shipped out packed in boxes in layers separated by straw. Much earlier, the Dutch were shipping pipes packed head to tail in wooden boxes holding over 250 (two-gross size?) with what appears to have been some form of seed-pod in some of the bowls which may have been packing, on evidence from the underwater excavation of the wreck of the Dutch East Indiaman Vergulde Draeck which went down off the Western Australian coast in 1656 (J.N. Green 1973 178, 283) (the excavator's alternative suggestion for the pods, that they were some form of tobacco, seems highly improbable). According to Savary des Bruslons, who was probably describing methods current in the early C18, Gouda pipemakers packed their pipes in straw or buckwheat husks in firwood chests ranging in capacity from 4 to 24 gross; Dieppe makers of the same period, by contrast, favoured hay for packing and small beechwood boxes usually of one gross capacity (Savary des Bruslons 1759-65 ed: IV, cols 199-200).

How Bristol pipemakers packed their pipes, whether for local delivery or export, is unfortunately unknown. Jackson and Price's examination of the Bristol port-books for the period 1773-1818 shows that exports at this time are almost always listed as boxes of pipes, though occasionally cases or kegs are mentioned (R. Price in litt. 18 January 1974) - this supports a reference by Latimer (1893: 414) to Bristol pipemakers having exported 500 or 600 boxes of pipes annually to the colonies prior to this trade being disrupted in 1774 by the American Revolution (see p.677 below). Presumably these containers held specified quantities of pipes, but if so, the quantities are unknown, though a 27 May 1799 shipment of "1 box, 10 groce tobacco pipes" to Wexford indicates that in this case either one box held 10 gross or else the order comprised one box plus 10 gross, implying a box held more than 10 gross. Certainly, in the mid-C19 the annual production of two Montreal pipemaking firms was quoted in boxes, one firm being noted as producing 15,000 boxes with the capability of extending this to 25,000 (Anonymous 1856c: 137, 1952 ed; see p.358 below). A New England manuscript describing the legitimate trade from there to West Africa at the beginning of the C19 refers in a context listing trade goods used in general to "large English & dutch pipes in chests" (G.E. Brooks 1970: 329); elsewhere, in giving advice on how to short-change the natives, the writer counsels

> Make two bunches of beads out of one, except barley corn. If the tooth [tusk] is under 2 rounds or 40 ells don't pay a neptune [a large brass or copper pan] - a box pipes will answer as well (Brooks op. cit. 243)

which suggests a box of pipes was a small payment and here at any rate presumably much less than the chests mentioned earlier. There is some scattered evidence both from Bristol and elsewhere that in the C17 and early

C18 shipments abroad were listed not by the container but by the gross (see pp650-1 and 655); but three 1656 references to Bristol pipes being shipped across the Bristol Channel to Caerleon and another reference in the same year to pipes being sent from Caerleon to Bristol all note boxes of pipes while "2 baskets of tobacco pipes and earthenware" to Aberthaw, 12 miles west of Cardiff, apparently presumably from Bristol, are recorded in 1700 and "four Caskes of Tobacco Pips" are recorded reaching Aberthaw from Bridgwater in Somerset in 1662 (Talbot 1969: 131).

Packing of clay pipes to ensure their safe arrival despite vigorous handling in transit is a job of some importance, for the tradition in the business is that of caveat emptor, the retailer taking loss of any breakages (e.g. Anonymous 1856a: 92); and a firm would not keep its clients long if its products did not consistently arrive in good condition (cf the remark in the ledger-book of the Angel Hotel, Abergavenny, noted in 5: 1 about "12 Gross best Broseley pipes sent without order & much broken"). In 1812 a Truro pipemaker, Samuel Randall, advertised that "he continues to sell PIPES of the best quality, on the lowest terms, and conveys them to any part of the county free of all Breakage" (Douch 1971: 151, 147). Pollock's check the efficacy of their packing - which seems to be exceptionally good - by regularly throwing a case of pipes across the factory and then opening it (J. Peterson 1968: 14). At least in the case of McDougall's, home sales were delivered by the firm's vans or carrier but export orders were delivered FOB a British port (Rodger *in litt*. 17 January 1972; see also 5: I).

As noted above, Ebenezer Church of Pentonville, London, stated in his 1879 price list that his terms for delivery within London - which was probably done with horse and van - were COD, "Country Customers" being

> respectfully informed that their Orders can only be replied to by Invoice. The Goods cannot be sent away from the Works until a Remittance has been received for the amount.

Such arrangements appear to have been traditional throughout the trade: Savary des Bruslons noted in the early C18 that

> *Ceux qui font commerce de Pipes en gros, les vendent aux Détailleurs sur les échantillons, sans faire l'ouverture des caisses, ensorte que celles qui se trouve rompues & cassées restent pour le compte de l'Acheteur. C'est un usage établi parmi les Marchands qui font ce négoce* (Savary des Bruslons 1759-65 ed: IV, col. 200; also quoted in Jean-Léo 1971: 8 and 10 from a "1726" ed [prob. the first, 1723, ed - see p. 54, n. 16 above] and in Roux *et al* 1762-64: II, 357).

Jean-Léo also notes (1971: 10, 25) that the 1909 catalogue of Victor Belle of Erôme-Gervaud (*département* of Drôme) told prospective buyers "*Nos pipes en terre sont toujours emballées avec le plus grand soin, [mais] comme cet article est fragile, nous déclinons toute responsabilité pour la casse qui pourrait se produire en course de route*".[20]

Attempts to automate pipe manufacture were made last century, but as with the similar attempt at Andenne after WW I these failed largely because the industry by its very nature has always been one where the skills of a craftsman were paramount. Indeed, nowadays *it is not the decline* in the market which is causing the demise of the industry: it is the lack of skilled workers. McDougall's markets remained steady from ca.1950 until the final running down of the industry in 1967 (Walker and Walker 1969: 146) and Pollock's can scarcely keep up with demand, particularly from North America. Pollock's in 1967 would have taken on additional workers and trained them had they been certain about the future of their factory site which was in a redevelopment zone. (In 1974 the firm moved to a nearby site.)

Fleming (1923: 239) mentions two machines patented in 1868 and 1879 designed to automate pipe production in Glasgow but that both failed because they were unable to give the craftsmanship necessary. The former machine - provisionally patented only - was patent number 2125, 3 July 1868, and the product of Andrew Kane of Dundee (not, as Fleming says, Andrew Lane of Glasgow). As described in the abridgements of patents, this was simply a system whereby the lever which pushed in the stopper simultaneously pushed in the wire. The second machine, patent number 3395, 23 August 1879, was patented to J.R. Bird and Charles G. Robinson (Fleming gives Robinson's middle initial as J.) of Glasgow and was a very complex piece of machinery designed to do the whole rolling, moulding, and wiring process. It was described as an improvement on a machine patented by one R. Golding on 5 December 1877 (patent 4607) which in turn was an improved version of an earlier machine of Golding patented 11 August 1875 (no 2823). A feature of this series of machines was that they used extremely stiff clay (cf p.199 below) but despite the series of improvements it apparently did not prove a success.

According to Jewitt (1878: I, 298), who like Fleming is not a reliable source on pipes, Edwin Southorn of Broseley introduced steampower in 1868 (how is not stated and this writer found no patent) to produce 1,500,000 pipes a year. The first patents for manufacturing clay pipes were not recorded until 1848 (cf C. Knight (publisher) 1851: 1703), but they were soon followed by a number appearing throughout the remainder of the century. All emphasize the mass-production of the item by complex machinery. One (patent 2036, 11 June 1874) describes a process which made the pipe in two parts, the joint being effected by a socket - the process was, however, only provisionally patented, and nothing more appears to have been done with it. The patent was to T. McLuckie, probably the McLuckie who is listed first with Prentice and then with Fenton working in Glasgow between 1873 and 1877. In the collection of pipes and related material in the possession of the tobacco firm W.D. and H.O. Wills of Bristol there is a mould which may have belonged to some mechanized process. It is a bipartite mould split laterally instead of vertically and with the slot to take the knife where it trims the bowl top on the side of the mould away from the stem, and it is difficult to see how it could have been used in any manual process. One patented machine (number 12,911, 6 June 1902, patentee a T.D. Young) took moulds which split in this manner, and this mould may well have come from this type of machine - unfortunately, the mould is not illustrated in the abridged descriptions of patents.

Combating decline in demand by striving for mass-production was, however, a self-destructive process, for the increase in volume was not enough to offset the decline per unit of profit which was never much at the best of times. Further, piece-rate production, emphasizing quantity not quality, militated against carefully-produced pipes and particularly against properly trimmed pipes, so that appearance frequently suffered and asked-for prices tended to be forced down. About the turn of the C19 Flanagan of Leicester was selling his cutties for 9s a gross to publicans who gave them away free to their customers (Daniell 1965: 61), and Fleming (1923: 237) remembers about the same time clay-pipe hawkers going round public houses in Glasgow every Saturday morning selling their wares to publicans who gave them away to customers; interestingly, decline in the social status and in sales of clay pipes early this century has been attributed to just this giving away of pipes in public houses (J. Peterson 1968: 13). As noted later (3: I), the London and Westminster pipemakers' guild forbade in 1805 the selling of pipes to pedlars: this may have been to prevent a pipemaker unloading sub-standard products and thereby hurting the reputation of the trade, or it may have been to prevent a maker selling large quantities at a reduced rate in the hope that a pedlar operating at poverty level could sell enough cheaply to let the maker recoup his lessened profit through volume sales to the disadvantage of other makers, but in any event the rule was clearly aimed at trying to maintain quality. Perhaps inevitably, the rule was dead by mid-century when hawking appears to have been a standard occupation (5: I), even before the demise of the guild in 1868.

Some firms did manage, however, to obtain a widespread market through production of superior products. Pipes of the famous Southorn family of Broseley last century appear in museums over most of south and west England and South Wales visited by this writer (see 6: VII(c)), and that family did have a reputation for outstandingly fine products. Much less frequent in their appearance in these museums, but occuring often enough to suggest there was still a market for superior-quality clay pipes, are French and Dutch products, and the superbly-crafted pipes by the London firm of Crop (see 4: VI) imitating the style of Gambier and Fiolet of France. The clientele for these latter pipes, however, must have been of a quite different class from the normal clay-pipe smoker (cf 6: VII(c)).

In C19 North America relatively few white clay pipes - that is, those made of ball clay - were made (other types of clay pipe were, see I. Walker 1971a and refs; Thomas and Burnett 1972; Murphy and Reich 1973; also Section VIII below). Where white pipes were made - for example in Montreal, Quebec City, and Detroit - imported English ball clay must have been used (for Canada see I. Walker 1966d, cf Lambart 1967: 10 and 1970: vii, 27 n.64; for the United States see L.W. Watkins 1950: 166; see also 4: V). As ballclay in bulk must have been much cheaper to bring across the Atlantic than specially-packed clay pipes which cost at least twice their British selling price when freight, import duties, and allowances for breakages (which last were borne by the North American vendor) were added (see 5: 1), one would have expected North American-made pipes to have had an advantage in the New World market, but this appears never to have been so, British and specifically Glasgow pipes having a continent-wide distribution last century (see 4: IV). While Glasgow pipes were traded to most parts of the world last century and must undoubtedly have had a good reputation, one cannot help wondering whether they had superior marketing or perhaps simply a lower production price which enabled them to beat North American pipemakers at their own game in their own countries. Certainly British makers took every possible step to cut as many expenses between the finished product and the customer - in this century both McDougall's and Pollock's have used members of their firms as salesmen and distributors in Britain, Ireland, and North America rather than have the expense of middlemen.

Omwake (1965b: 30-1, followed by this writer - I. Walker 1967c: 189) has suggested that the off-centre stem bore often seen on stem fragments (cf Cole 1892: 182-3; H. Scott 1917: 158) was a deliberately-made feature to facilitate the pipemaker's feeling of the progress of the wire through the stem, but another source (quoted in Fairholt 1859: 177) says the wire was inserted exactly in the centre of the roll. Pollock (*in litt*. 14 March 1968) says that while an off-centre wire might conceivably be used on a very thick stem, dead centre would be ideal, for having the bore enter the bowl offset would not look good even on a cheap pipe, and would result in uneven smoking and colouring of the pipe. Normally the button at the end of the wire can be felt even when the wire is dead centre.

FIG 112 illustrates the type of pipe which was sometimes made last century as a tour de force of skill. How they were made is uncertain. Mr Clive Southorn at Broseley, when visited in 1968, claimed he could make pipes in this manner with stems several feet long, but declined to say how, merely putting a finger up his jacket sleeve to indicate he made the technique "up his sleeve". A possibility is that a fine string was pulled through from the bowl when the wire was withdrawn, the curleques made, and the pipe then fired, burning out the string - Mr F. Fawcett, late curator of Nuneaton Museum, noted that in examining broken fragments of one of these pipes he had observed what appeared to be the impression of string in the bore. The moulding must certainly have been of a straight-stemmed pipe, and the stem length of the example illustrated here was approximately 22 ins (as noted earlier, I: II(d), the Dutch made metre-long pipes, indicating moulds and wires ca.40 ins long). Pipes in very much more complex forms and very much longer are known made in pottery (e.g. Macartney 1906: 15-16, nos III-V and VII - Staffordshire made, no 5 inscribed "John Hughes 1808"; Fleming 1923; pl XXXVI centre - made at Prestonpans, nr Edinburgh, caption dates it to 1820; A. Dunhill 1924: pls XXV,1,3,5 and XXVI,1 and 3, pp233-4 - Staffordshire, with pl XXV,6 captioned "possibly by Pratt, 1780-1790"; Edings 1931: nos I-XIV, pp230-32 - Staffordshire, one inscribed "Thomas Nicholls 1823" and two identified as possibly Pratt's and ca.1780-90; A. and C. Scott 1966: 37, 38 - Staffordshire and attrib. to Astbury, Wheildon, Pratt, and "a host of others also"; Garrett 1968: 107 top illus. - caption dates examples to late C18 and early C19; Bastien 1973: figs 65-7 - Staffordshire, "*XVIII^{e} siècle*"; two examples in County Museum, Carmarthen, seen 1969, one inscribed "[Will]iams Gwyfe 1808" and the other "David Jones Mason 1805"; several examples also seen at "House of Pipes" museum at Bramber, Sussex, October 1973). Edings notes one (1931: 232, 233 no XIV) a foot in overall length and probably well over 20 ft in extended length; two other styles he notes averaged ca.9 ft and a little over 12 ft respectively (cf Macartney *loc. cit*.), suggesting Mr Southorn's boast was not an idle one.

To return to moulds and their expected length of life, this of course must depend primarily on whether the shape imparted by the mould remained marketable - White's of Glasgow, who were 150 years old when they closed in 1955 (and more if they did indeed take over the pipe-manufacturing branch of the Corporation of Tobacco Spinners of Glasgow - see 4: IV) had accumulated 2,000 moulds by that time (Samson 1954: 10). In the later C19 and earlier C20 the East London firm of John George Reynolds - first noted in 1828 (Bloice in Atkinson and Oswald 1969: 223) - and its successors claimed to have 1,000 moulds available (*London Post Office Directories*).[21] The entire material of White's appears to have been destroyed when their building was taken over by a shoe-making firm (Glendale Footwear Co Ltd *in litt*. 12 January 1968); the building is not - contra Butt 1967: 266, who may have meant Christie's factory in Craignestock St - disused. McDougall's in their last days were still using between 30 and 40 of their large stock of moulds to suit regional and other tastes (Walker and Walker 1969: 145; cf Samson 1954: 12 for similar regional variety catered to by White's in their last years). Certain moulds, such as those for TD pipes (I. Walker 1966a) must have worn out relatively quickly, as this very popular style has been made continuously for at least a century; others, representing manufacturers' gimmicks or an advertising stunt, would fall out of use probably long before they became worn out.

Among the former type, apart from certain shapes such as the TD which had general popularity, can be classed those designed to appeal to certain groups. It is possible that motifs designed to appeal to the clientele of certain public houses - motifs involving the inns' signs - were being put on London-made pipes as early as the first quarter of the C17 (Atkinson and Oswald 1969: 189 and 192, 191 fig 7), and it has been suggested that Chester makers were also doing this in the first half of the C18 (Webster and Barton 1957: 19-20). Certainly, such motifs were being put on London pipes in the first half of the C19 (Atkinson and Oswald 1969: *loc. cit.* and 201).

Two London tobacconists of the C19, Milo and Inderwick, are said to have had their own brands of pipe custom-made for them (Apperson 1914: 162-3, cf Pritchett 1890: 18) and designed for the firms' discerning customers. A stem marked T. MILO S[TRAND?] has been recorded from Ontario (T. Kenyon 1970), as has a substantially-whole pipe marked T. Milo (I. Walker 1970a: 106 illus.), and bowls marked MILO/STRAND have been found in Quebec province (Barka 1970: no pagination) and in Washington state (Saastamo 1973: 88, 86 middle row left).

A mould to produce pipes with MILO facing the smoker in a sub-circular surround and a pipe from such a mould are among the pipes and pipemaking material in the City Museum and Art Gallery, Aberdeen, formerly belonging to a John Auld. Auld is said to have been an Aberdeen tobacconist at the beginning of this century; however, as he had a complete pipe-making apparatus and set of tools he must also have been a pipemaker. He has another mould and pipes with various depictions of the name Swinyard, a London, Surrey, Sussex, and Hampshire pipemaking family from the 1820s to 1926 (Atkinson 1958: 120; 1964a: 79, 81 n.9; 1967; 315; 1968: 14; Atkinson and Oswald 1969: 223-4); but as is noted below, both "Milo" and "Swainyard" [sic] were names of pipe types being produced by several Scottish makers by 1900, and as pipes of these types were actually being made in Aberdeen at this date (Anonymous 1900: 61-3) it is more likely that the moulds and pipes here represent these types than that Auld had bought Milo- and Swinyard-owned moulds. Whether original Milo and other styles were actually followed is uncertain, but the very fact the names were plagiarized indicates their popularity. Among the "Fancy Clays" listed in an 1879 price list of the products of Ebenezer Church of Pentonville, London (see 4: VI), in the possession of this writer is a "Milo Scotch", indicating the use of the term Milo for a certain type of pipe by that date. Tennyson, writing in 1895 about his father, noted that he smoked "Milos, and afterwards Dublin pipes" (quoted in Cassidy 1895: 26) - a Dublin was certainly a shape of pipe bowl, but it is unclear from this remark whether Milos also referred to a general style of pipe or to specific products of or for the firm of Milo. The occurrence of the mark SWINYARD/MAKER in a circle stamped on the bowl facing the smoker (Atkinson 1968: 14) and a mark with the same wording but with LONDON added, also facing the smoker (NMAS files), certainly suggests the Swinyard family were aware their name was being taken in vain.

However, it was possible to register a clay pipe design to protect it from imitation. Ebenezer Church (see above) successfully charged another pipemaker, William Hincher (sic) of Mount St, Bethnal Green, in 1877 with fraudulently copying his "Danube Bramble" pipe, which he had registered the previous year. Hincher claimed that the difference in the size of the ornamental thorns, those on one pipe being much larger than those on the other, was a valid distinction, but the magistrate ruled the difference was not sufficient to constitute an originality and fined Hincher £5 with £2 4s costs with the alternative of two months in jail, which latter was apparently the option taken, as the account of the case ends with the observation that the defendant was "locked up" (reported in *The Times* of 5 October 1877; original clipping in possession of Miss E.J. Church, copy in this writer's possession). Ebenezer Church took the opportunity to use this court case in one of his advertisements (original in Miss Church's possession, copy with this writer), suggesting a good eye for publicity. (Bloice (in Atkinson and Oswald 1969: 220) lists several Hensher, Hencher, and Henshaw pipemakers last century in the London area probably all related (cf also Drewett 1974: 12), including a William Hensher at Mount St, Bethnal Green, though the dates given, 1890-96, suggest this may have been a son of the William "Hincher" noted above - a Robert Hensher appears at this address from 1897.)

A John Inderwick is listed as a pipemaker at the firm's then premises in Princes St, Leicester Sq, in 1839 (Bloice in Atkinson and Oswald 1969: 221); however, as noted in 1: VII(d), Inderwick specialized in meerschaum pipes and if the firm made any pipes themselves it is more likely to have been these. Inderwick and Co are also listed as pipemakers at the end of the C19, but by this time it is much more likely they were supplying briers (cf Inderwick and Co Ltd *in litt.* 24 February 1969).

Roynane (1903: 421-2) records a pipe found at Yougal in the south of Ireland with JL on the heel or spur and "J. Luther" stamped on the stem, and identified this person with a Yougal merchant John Luther active in the time of Charles II. If the identification is correct the pipe might be a very early instance of custom-marking for advertising purposes, but insufficient description of the pipe is given to enable its dating by shape and it is perhaps more likely that there was another J. Luther somewhere, either a customer or more likely (in view of the heel- or stem-mark having his initials) a maker. However, no English pipemakers of the name Luther are recorded in Oswald 1960a or elsewhere to this writer's knowledge.

At one time the Edinburgh firm of William Christie founded in 1894 supplied many pipes "to private order for advertising purposes" (Anonymous 1964b), and in 1892 the Bristol firm of Corcoran and Co advertised that names and addresses could be stamped on quantities of its best pipes (but not, presumably, its cheaper pipes). This suggests that certain sellers of clay pipes - presumably tobacconists and publicans - were advertising themselves on chosen brands of pipe.

Two pipe-bowls in the Bristol City Museum collections bearing rubber-stamped advertisements were found in Lamb St when that part of the Bristol pipemaking area was being cleared for rebuilding in the early 1960s, and as Corcoran was working at 14 Lamb St from 1892 to 1899 these pipes may be regarded as his products. One was a plain Dublin-style bowl, the other a Dublin type with three shamrocks on the left and a harp with ERIN under and surrounded with leaf scrolls on the right. The rubber stamp in both cases were oval in shape and of the same format. The ornamented bowl was stamped WILLIAMS/ROYAL ALBERT HOTEL/MORICE TOWN/DEVONPORT, the "Williams" and "Devonport" following the curve of the stamp at the top and bottom and the rest being placed centrally. The plain bowl was stamped W. EVANS/WHITE SWAN HOTEL/SWANSEA. (The latter hotel still exists in the High St, Swansea; it was known as The Swan by 1830 and continued as this until at least 1858, but by 1875 was known as the White Swan. In 1875 the occupant was an Edward Davis and in 1887 and 1889 the occupant was a D. Jarvis; unfortunately no further information is available from the Borough Estate Office, Swansea. The Royal Albert Hotel at Devonport first appears in 1862 and from 1882 until the beginning of WW II was at 29 Martin Terrace, Keyham Rd. Directories available to Plymouth City Libraries for the period 1852-1900 did not list a Williams occupying the premises.)

George's, the last Bristol pipe-firm to close, used a similar advertising technique on their pipes. Pipes in the possession of the descendants of the George family include ones with a rubber-stamped oval in the form of a buckled belt or garter with GEORGE'S BEER on the belt at the top of the stamp and NULLI SECUNDUS inside the oval. Shortly before George's pipe factory closed in 1921 the family were also associated with a public house at their Old Market St property (now demolished) and the inn belonged to George's Brewery (now part of Courage's) and thus sold George's beer. (The two George families are not known to have been related.)

A pipe made by the Southorn family of Broseley bearing a rubber-stamped garter with the legend OPPOSITE ST. PANCRAS STATION enclosing in the centre the words THE WHITE HART was recently found at Broseley (Atkinson and Oswald 1969: 188). In the Abergavenny and District Museum, Abergavenny, there are pipes rubber-stamped with a greyhound, which were presumably products for the now-demolished Greyhound Inn in the town. A cache of pipes from the Swan Inn, Barborne, Worcester, and now in the City Museum and Art Gallery, Worcester, includes many pipes of various types bearing an oval rubber-stamped mark reading T.S. MAYMAN/SWAN INN/BARBOURNE/WORCESTER, the first and last lines following the curve of the top and bottom of the stamp and the other two being centred, "Barbourne" being in smaller letters than "Swan Inn". These pipes were almost certainly the products of Edwin Southorn of Broseley: they are identical to other specimens in the cache which bear the Southorn impressed stamp on the stem but do not have the advertising. Apparently Southorn did not put his own mark on pipes bearing a commercial for the vendor. Pipes bearing the name of a pub were common at the beginning of the C20 at Burton upon Trent, where they were handed out free. One Suffolk man who had worked in the maltings at Burton for four seasons starting in 1901 recalled

> In all the pubs up there you could get a free clay-pipe at that time - with the pub's name on it. After my first season at Burton I brought ninety clay-pipes home with me (quoted in G.E. Evans 1970: 264)

which last remark illustrates an unusual example of pipes reaching far beyond their immediate area of origin, and one which, if it was at all common to bring such pipes back, would go far to explain any concentrations of later C19-earlier C20 Broseley clay pipes - which would have been the most likely pipes to have been sold in the Burton upon Trent area - found so far away as East Anglia, for hundreds of East Anglians went annually to work in the Burton maltings from before 1880 until 1931 (G.E. Evans 1970: chapts 22-26). (As the above evidence indicates, pubs were major centres for the distribution of clay pipes: Fleming indeed, presumably talking of the Glasgow area, recalled that until ca.1890 "Every inn and tavern...kept a rack of clay-pipes with the names of their regular clients written on them" (Fleming 1923: 237), presumably in the same way that pubs today often have individual beer-mugs for some of their regulars.)

Slightly more pretentious are pipes in the County Museum, Armagh, Northern Ireland, with W. SIMPSON/IRONMONGER/ARMAGH and W.SIMPSON/ TOBACCONIST /ARMAGH impressed with an oval stamp on the side of the bowl facing the smoker, (The County Museum, Armagh, *in litt*. 28 October 1970). An example excavated in Southwark with the name W. Boorman on the bowl and the initials T and B on the spur can be identified as a product of the Thomas Balme fl 1805-40 (Bloice in Atkinson and Oswald 1969: 217) who worked on the Mile End Rd in East London (cf I. Walker 1969: 48), while Boorman appears to have been a general grocer in Portman Square near Marble Arch during this period (Oswald 1959b: 110).[22] Such marking was apparently common enough to make some pipemakers decide, as noted above, to add MAKER after *their* name on their products (e.g. the Swinyard bowls noted above, the bowls marked CLARK/MAKER facing the smoker attributable to George Clark(e) of London fl 1789-1828 (Oswald 1959c: 205 fig 5(32); Atkinson and Oswald 1969: 190 fig 6,31, 189, 218), the bowl with R MOORE and MAKER moulded on the left and right sides of the bowl a little below the rim - maker unknown but probably London, bowl datable to ca.1800-40 (Atkinson and Oswald 1969: 193 fig 8,52, 192)).

That this sort of advertising was widespread is indicated by a pipe from Fort Sanders, Wyoming, with COMPLIMENTS OF THE CAPITOL CITY CLOTHING on the left side of the bowl and ON? ...COR 5th & LOCUST STS ST LOUIS on the right (R.L. Wilson 1971: 46, 78 fig 33,C). The pipe was found ca.800 miles from St. Louis; its inscriptions are *moulded* in large raised capitals, which indicates Capitol City Clothing were publicity-conscious enough to have arranged for custom-inscribed moulds.

Two interesting stem-markings, unique in this writer's experience, have recently been found on excavations conducted by the Research Division of the National Historic Parks and Sites Branch in Ottawa. One, on a pipe recovered from Fort George, Niagara-on-the-Lake, Ontario, read W. WHITE GLASGOW on one side and BUSH & C° AGENT on the other; the other example was on a stem-fragment from the Les Vieux Forges de Saint-Maurice site near Trois-Rivières, Quebec province, which had McDOUGALL*G- on one side and -TRAND.AGENT on the other. As the pipes were recovered from Canadian sites it is tempting to suggest the agents so advertised on the pipes were suppliers in Canadian centres and named to facilitate reordering. (There could conceivably have been an agent in Niagara-on-the-Lake - see comments on Niagara-found Ring of Bristol pipes, 6: VII(b)(4).)[23]

A rather puzzling occurrence, which may in fact be a case of a supplier's name appearing on the pipe to the exclusion of the maker's, is the pipes marked H.B.W. Russell of Liverpool known from two sites in Ghana (Calvocoressi MS). The only H.B.W. Russell listed in the Liverpool trade directories is a Henry Blythe W. Russell: he first appears in 1891 as an African merchant and commission agent, in 1892 he is a ship's-chandler and ship's stores dealer, and from 1900 the business becomes a company and is listed as African merchants, continuing to be listed in this fashion until 1933 (Liverpool Record Office in litt. 4 January 1974). One of the Ghana finds also has the mould number 243 on the stem, but it should be remembered that the maker's name and place of work were imparted by thin metal slips of metal soldered into position in the mould as the abrasive qualities of the clay necessitated repeated resetting of the lettering (see below), so there would have been no difficulty in Russell having pipes made with his own name in place of the maker's, provided the latter were willing. The continued presence after 1891 of the name of the place of manufacture, as opposed to the country of manufacture, would imply that these pipes did not go to the United States, at any rate (see 1: II(g)).

A London-made pipe with SMOKE CONQUEROR. round a circle with a shamrock in the centre stamped on the bowl facing the smoker has been found recently on a New South Wales site where there was apparently some goldmining ca.1880-90 (McBryde in litt. 29 March and 3 June 1971) and an identical bowl with the stamp, though in this case the shamrock was not noted, was recovered from Port Royal, Jamaica (Oswald 1968: 27 no 35). (The New South Wales specimen has LONDON decipherable on the left side of the stem - which is the opposite to that normally taking the place-name - but the maker's name on the other side is unfortunately illegible.) Presumably Conqueror was a brand of tobacco; a bowl from excavations near the site of Merton Priory in Surrey had SAVELS TOBACCO in a band below the rim (Turner 1971: 121). A native of Stowmarket in Suffolk recalled that at about the beginning of this century "a tobacconist could have his name and so on stamped [on clay pipes] by the makers" (G.E. Evans 1960: 82, 1967 ed).

Pipes with the moulded letters RAOB and buffalo horns were designed for the Royal Antediluvian Order of Buffaloes and still find a market today; pipes with harps and/or shamrocks on their bowls were designed to tempt Irishmen; political slogans were used. At Leicester some pipes appeared with bowls inscribed PLAY UP LEIC., others with L.C.C.C. - Leicestershire

County Cricket Club (Daniell 1965: 62) - while the Portchester, Portsmouth, firm of Leigh and Co produced a pipe featuring the Portsmouth Amateur Football Club (C. Green 1973b). The list is endless (cf Atkinson and Oswald 1969: 197-201, fig 11-12).

(A variant on the custom-made pipe was the technique, apparently introduced in 1860 by Southorn's of Broseley (so Jewitt 1878: I, 298), of transfer-printing crests, mottoes, names and monograms of patrons; names of firms, hotels, or inns; and the like on pipes - this included work in colour.)

An example of the short-lived class is an extremely elaborately moulded pipe put out ca.1845 by the Duméril firm of Saint-Omer, a pipe which must have been among their first products as they were founded in 1845. The bowl is the head of the Duke of Wellington, the stub stem is a soldier thumbing his nose at the Duke behind his back. This lampoon referred to an order made by the Duke in 1845 and designed to restrict smoking in the army (pipe illustrated in Fairholt 1859: 186 and Fresco-Corbu 1967: 1474, fig 1; the story is also told in I. Noël Hume 1974: 159). According to Mayhew (1861-62: I, 440, 1968 ed), quoting a street-seller of pipes, this pipe was the most popular of all "comic head" pipes, especially in public houses, but by 1851 (the time Mayhew was collecting this information) its popularity had long passed. This is therefore a case of a very elaborate mould being designed for an extremely popular but predictably short-lived market.

Another example in this class is one in the museum at Filkins, Oxfordshire. The bowl is the large top-hat and the head of a well-dressed man with an umbrella whose body forms part of the stem. The style of the pipe is typically French; the cravat, umbrella, boots, waistcoat, eyes, and eyebrows are glaze-coloured. On one side of the top-hat is VOILA LAMBERT in raised letters, on the other OHE! LAMBERT. These phrases reflect the rising unpopularity of Napoleon III's Second Empire, 1852-70, and specifically concerns the Empress Eugénie. Apparently she wished to find a court official named Lambert and asked the Chamberlain if he had seen him. The Chamberlain in turn asked the person next to him and the process was repeated down the line. The expression "As-tu vu Lambert?" became a catch-phrase in the streets, cafes, and theatres, and with it various replies and similar calls such as the two on this pipe (ex info. Filkins Museum).

A pipe with a stem in the shape of a musket and bowl in that of a soldier's hat, with "Sebastopol pipe" stamped on one side and "Longworth, London" on the other was put out during the Crimean War, 1854-56 (Fairholt 1859: 191, illus.; Charles Longworth is recorded as a pipemaker from 1854 to 1860, Bloice in Atkinson and Oswald 1969: 221).

The museums at Warwick, Nuneaton, Stroud, Filkins, and the private collection of A.S. Brook of Totnes each have a pipe with a parachutist on the sides of the bowl - this was apparently inspired by a poster depicting parachuting which appeared in 1889 (ex info. County Museum, Warwick). Other examples of this class are the American presidential campaign pipes, some at least made in France, and sold in the United States (Anonymous 1968e; Cousley 1972; cf Calver 1931: 96, 98-101).

More typical of the less elaborate pipe designed to be topical is one with Lord Nelson and Britannia - the latter holding a spray of laurel - on the bowl. Above Nelson's head is the word "Trafalgar" (Gant 1964), and though such pipes may have remained popular for some years they were clearly aimed at a relatively short-lived market.

Another example is a pipe with a giant bowl showing the Crystal Palace (e.g. Oswald 1959c: pl 127,e - upper left). This mould appears to have been popular, for a number of makers used it, among them W. Southorn and Co of Broseley, who illustrated it in a poster dating to 1871 or later (Anonymous n.d.[12]; Blake of London (a pipe noted in the Simcoe County Museum, Minesing, Ontario, in 1967); and Pardoe of Nantgarw, near Cardiff (I.J. Williams 1932: 140), besides a number of examples seen by the writer with no maker's identification on them (several specimens are in the "House of Pipes" museum at Bramber in Sussex).

Gimmick pipes are innumerable - a pipemaker writing in 1921 (Anonymous 1921a) noted that "Any great event, such as a Jubilee or a Coronation, used to lead to the production of new moulds illustrating the event". Even music-hall songs were used as a gimmick. NOT FOR JOE on a pipe-stem excavated on St Tudwal's Island, off the Caernarvonshire coast, was a catch phrase very popular from 1870, when the song "Not for Joseph" was written, until at least the 1890s (Hague 1961; cf Pearsall 1973: 43); and Flanagan of Leicester had a tripartite mould for a pipe with a bowl depicting a man carrying a small boy on his back with the title below SAM TORR ON HIS DADDY-O - the title of another music-hall ballad very popular at the turn of the C19 (Daniell 1965: 62, mould illus. pl V).

Pipes of this class are legion - Oswald (1959c: 207 and Plate 127,e) illustrates and notes a selection of C19 examples. That they continued into the C20 is indicated by Pollock's pipes with Edward VII on the side of the bowl and McDougall's with Edward VIII similarly depicted. Pollock's also have a pipe where the bowl is in the form of a lady's head with one of the motoring-bonnets worn in the early days of car-travelling; MOTORING GIRL is mould-impressed on the stem. The same firm also produces a pipe with the bowl representing Gladstone. Such pipes have a longer period of sale nowadays than would have been the case in the C19; partly this is because it is impossible to obtain new moulds, but partly it is due to a conscious trend towards the antique.

Chalkley (1955a: 5th page) claims that continued use of a mould wears the opposing faces, eventually resulting in an oval-sectioned stem with vertical axis longer than its horizontal axis. Chalkley is probably right here, for most stem fragments of C18 pipes studied by the writer are of that shape except towards the mouthpiece, and one would have thought that if anything oblateness in the opposite direction would have been sought after to enable a better grip by the fingers (I. Walker 1967c: 189). Markedly oval bowls, however, have been seen by the writer only in C19 material - that in the Bristol City Museum collections, for example, often comes from ill-fitting moulds and frequently exhibits markedly oval bowls with a circular inside, which suggests considerable wear on the opposing mould faces. Such poor workmanship would be in keeping with the sweated industry of last century; and it may be that earlier makers reamed their moulds from time to time to preserve a better shape, especially for the bowl - a C17 reference to pipemakers' tools includes three files (see below). Atkinson (in litt. 26 September 1971) notes that in Sussex there is a common and widely-distributed pipe datable to ca.1820 with F/C on the spur and the royal coat-of-arms on the bowl, examples of which have been found of every condition from sharp depiction to one so blurred it can hardly be made out, suggesting the mould was in use for a considerable time and that its design had been worn down.

Sprengel (1772: 296) refers to Brandenburg pipemakers sandstoning the opposing faces of their moulds when too much excess clay was observed along the mould-lines; this was to obtain sharp edges to the hollow part of the mould and as tight a fit of the two faces as possible.

The stopper also tended to wear the mouth of the mould. A mould in the Anthropological Museum, Marischal College, University of Aberdeen, and another in the City Museum and Art Gallery, Aberdeen, have identical repairs in the form of a one or more thin pieces of sheet steel rivetted to the internal face of the mould, the rivet being flush on the inside and coming out the outside corner of the mould from a drilled hole where it has been wedged in place with a piece of wood. (The moulds may have been used by the same firm - that in the former museum is unprovenanced, the other is marked "Milo" and belonged to the Aberdeen tobacconist and presumably pipemaker, John Auld. Milo was the name of a famous London pipe firm, but it was also the name of a pipe type (see above and below) known in Scotland ca.1900.)

Auld's stoppers in the City Museum and Art Gallery, Aberdeen, have a curious set of denticulated marks at their ends rather as though they had at some time been trimmed down to a smaller size or different shape, though what sort of trimming would cause such marking is difficult to say. As each mould originally came with its own stopper made to fit, one may suppose that with a declining industry old stoppers were used as replacements and where really necessary were trimmed to make an adequate fit.

The action of the knife cutting off the top of the pipe-bowl in the mould also resulted in wear at the bottom of the slot taking the knife, there sometimes being a noticeable set of scars where the knife had repeatedly hit the body of the mould. In at least some cases, however, moulds were made with a groove at this point designed to take the blade and presumably reduce wear both on the mould and the knife.

The clay itself abrades the moulds: the omission in modern times by McDougall's of the maker's name and place of work which many C19 firms put on their pipe-stems (examples in I. Walker 1971d) is because the clay wore down the letters, necessitating their repeated resetting (Walker and Walker 1969: 135). Only on pipes destined for places where the law of the country demands that foreign products bear their country of origin did McDougall's continue with lettering on the stems, and Pollock's use a rubber stamp with indelible ink on most, though not all, of their export models. Letters that formed an integral part of the pipe style, such as TD or RAOB were, of course, continued.

Prior to the sophisticated C19 styles, however, makers probably had only enough moulds to keep their businesses in full production. Pipes bearing elaborate mould-imparted decoration are known from the C17 onwards, both in The Netherlands (e.g. Brongers 1964b: 34) and England (e.g. Brongers loc. cit.; Oswald 1960a: 52; I. Walker 1966a: 90 figs 3a-3c), but they form only a very small proportion of pipes made. The earliest definitely-dated instances of mould-imparted makers' names and place of work known to the writer are stem fragments marked JAMES EATON LIVERPOOL - all on one side unlike the typical C19 marking with the name on one side and place on the other each reading from left to right - one of which occurs in a 1758-68 context at Louisbourg, Nova Scotia (Lindsay in litt. 8 November and 6 December 1972); and a similarly-marked stem reading W•MORGAN•LIVERPOOL from a ca.1760-80 context at Williamsburg, Virginia, sealed under material datable to the last quarter of the C18 (A. Noël Hume in litt. 11 August 1964). Eaton is presumably the James Eton F 1757 (Oswald 1960a: 69); Morgan must be the one noted by Oswald (1960a: 84) - misprinted as Morley - in 1767 (father of the other William "Morley" noted in 1803). A stem-fragment from an Indian site at Prince Rupert, British Columbia, has J ATHERTON &CO- on one side in standard Liverpool style and nothing on the opposite side (ex info. R. Ingles, National Museum of Man, Ottawa; pipe examined by this writer April 1973), and is presumably attributable to one of the James Athertons recorded in Liverpool between 1796 and 1805 (Liverpool Records Office in litt. 7 March 1973). Almost certainly LIVERPOOL followed the CO (or COMPANY) in the surviving inscription; certainly this use of one side of the stem only for marking continued into the early C19, for a stem marked W. HOLMES LIVERPOOL from Newport News, Virginia (Pawson 1969: 125), must be a product of the William Holmes noted in Liverpool in 1810 (Oswald 1960a: 77). Probably quite early in the C19, however, Liverpool makers were apparently converted to putting their name on one side of the stem and that of the city on the opposite side (e.g. Davoud, now MacLean, 1969a: 11, fig 18; Humphrey 1969: 17, 16 fig 8) - the pipe from Signal Hill, Newfoundland, with MORGAN on one side and LIVERPOOL on the other (Jelks 1973: 75) is therefore probably a product of one of the later Morgans, a number of whom are recorded in the later C18 and early C19. R. Thursfield (1863: 81) notes that the stamping of "names of residences" on stems began "about eighty years ago", - i.e. ca.1780 - which agrees with the other evidence.

As noted above, major firms in the C19 could accumulate thousands of moulds during their lifetime. A 1900 list of pipes made in Edinburgh and Aberdeen and by the five major Glasgow pipemaking firms (Anonymous 1900) indicates each business had a range of hundreds of styles, though naturally many were the same for each firm.[24] Some have names suggesting the shape of the pipe or its bowl, or its decoration, or at least the slogan which was the selling-point of that particular pipe, and some names descriptive of bowl-shape, such as Dublin and Billiard, still exist in the brier pipe business.

Particularly interesting, however, and a reflection of the cut-throat competition for survival in the trade, are names which plagiarize the names of famous pipemaking firms in Britain and abroad. The production of "Peter Dornie" pipes by McDougall's and Davidson's both of Glasgow, and presumably imitating pipes made by a north French maker Peter Dorni and bearing his name, or at least taking the name to get buyers to associate the pipe thus marked with the products of a famous maker, is noted in 3: V. (In the case of Dornie his name and pipe style were plagiarized in at least two other countries, The Netherlands and Germany. At least one German maker also produced pipes with DAVIDSON - spelt with a reversed N - on them (see 3: III). Another example of a foreign country using British inscriptions is a pipe in the Cuming Museum in London with BURNS CUTTY PIPE on the right side of the stem and L FIOLET S^{T} OMER on the other (Oswald files); the bowl of this pipe has moulded floral decoration and typical C19 French coloured glazes.)

However, Scottish makers also adopted names for pipe styles which included names of well-known British makers. A large number of names include the words "Milo" and "Crop", both of them names of famous London pipe suppliers (for Milo see above, for Crop see 4: VI), and this can hardly be coincidence. Little is known about Milo's, who appear to have been basically tobacconists, and they may have been closed by 1900, but certainly various Crops were making pipes from 1856 to 1924, so apparently one was able to use these words without running into legal problems. The words "Webb", "Balm" [sic] and "Swainyard" [sic] also occur, and it seems certain that the first two reflect the several Webb and Balme pipemakers in London in the first three-quarters of the C19 (Bloice in Atkinson and Oswald 1969: 225, 217) and the third the Swinyard family of pipemakers noted above who worked in London, Sussex, Surrey and Hampshire. In the case of Balm pipes it is interesting that they are sometimes associated in the sequence of numbers given to each style with a style called "Mile End", which could be a reference to that area of East London - a Thomas Balme working at Wentworth Place, Mile End Rd, early in the C19 and was succeeded there by a famous pipemaking concern, that of Ford (I. Walker 1969; see also 4: VI) - a pipe with BALME MILE END on the bowl and T/B on the sides of the heel from Waltham Abbey in Essex (Huggins 1970: 95) must undoubtedly be a product of Thomas Balme of Wentworth Place (cf bowl with BALME and ROMFORD on it and T/B on the heel sides from Barking in Essex (Harley 1964: 213, pl I) attributable to either the same Thomas Balme with a branch in Romford or another Thomas Balme working contemporaneously with the other at the beginning of the C19: Bloice (in Atkinson and Oswald 1969: 217) notes two Balmes, Thomas fl 1805-11 and John fl 1823-28, in Romford; a third is implied by a bowl fragment with P/B on the heel sides and BAL[ME] ROMFO[RD] on the body also from Waltham Abbey (Huggins loc. cit.) - Bloice (loc. cit.) notes either one or two Paul Balmes in the Mile End Rd fl 1832-54 and 1862-66).

Also appearing sometimes in the lists are "T.W." pipes: the term "Tam White" was apparently commonly used in the east of Scotland to mean a clay pipe and refered to the Edinburgh pipemaking firm of Thomas White (Fleming 1923: 243) who are recorded in business from 1823 to 1876. They were probably, at least until Chistie's of Glasgow opened a branch in Edinburgh in 1894, the major Edinburgh pipemaking firm, and so far as is known the only one to send their pipes abroad - Thomas White pipes have been found in eastern Canada (I. Walker 1971d: 25, 26 pl 3 fig, 15; see also 4: IV). As White's did produce pipes with T.W. & C°. on one side of the stem (I. Walker loc. cit.) one suspects "T.W." pipes were another case of plagiarism of a famous firm's products.

It should be remembered, of course, that in the case of firms no longer working by 1900, such as White's of Edinburgh, other firms could have bought their moulds, and indeed probably did so - Pollock's of Manchester, the last British pipemaking firm, bought moulds from McDougall's when that firm closed in 1967 (Walker and Walker 1969: 146). Thus Auld of Aberdeen could conceivably have bought genuine Milo and Swinyard moulds. However, these latter two firms' names were undoubtedly being plagiarized by 1900, and these and other instances show, as does the general prolification of pipe types, how keen pipemakers were to use any gimmick to boost their trade.

A mildly amusing variant on this sort of plagiarization occurs with a pipe (illustrated in I. Knight 1961: 34 upper photo, btm pipe) stamped "Carlyle's Pipe" after Thomas Carlyle, 1795-1881, whose indulgence in long-stemmed clay pipes was proverbial. The irony with this particular example, which to judge from the spiralling on the stem was probably a Southorn's of Broseley product, is that it had a curved stem and was (if made by Southorn's) English made; and Carlyle is recorded (quoted in Fleming 1923: 247) as being adamantly against English long-stemmed pipes because they were curved. (He also insisted on nothing but 21-ins pipes - the length of the illustrated "Carlyle's Pipe", however, is unfortunately not given.)

It is fair to assume that for the most part pipes prior to the C19 were utilitarian rather than decorative, and that on the whole the slowly-changing styles - a number of them regional - reflected in the Oswald and other typologies were as far as most manufacturers went in setting trends of style. However, as was noted in 1: II(a), and as will be noted in greater detail when dealing with the Bristol industry (6: VII(a)(2)), Oswald's type 9 bowl form, when it appeared in the 1680s, spread rapidly over the country, suggesting makers were aware of style as a selling-point; and certainly by the beginning of the C18 Bristol pipemakers were recognizing "types" of pipes, though apparently primarily based on stem lengths - a 1710 agreement signed by members of the Bristol pipemakers' guild standardized stem lengths for no fewer than five types of pipe, from "Long Pipes" at 16 ins through "Dutch Pipes" at 14 ins, "Jamayca Pipes" at 13 ins, "Pecked [?] Heeles" and "Gantletts" (sic) both at 11-1/2 ins, and "Virginia Pipes" at 8-1/2 ins (see p.15 above), though the exact meaning of some of these terms is uncertain (cf p.652 below).

Chalkley (1955a: 4th page and n.10) notes a mould made of oak and lined with sheet brass in the Curtis Museum, Alton, Hampshire (this is probably the source of Oswald's statement (1960a: 40) that there are brass moulds at Alton), and suggests that pipemakers could improvise such simple moulds to meet their needs. However, an examination in October 1968 by the writer and P. Brears then of the Curtis Museum of the collections and registers gave no indication that such a mould (or any brass moulds) ever existed there - the only object remotely resembling Chalkley's description is a wooden pipe-case in the rough shape of a pipe, made of two pieces and hinged (Oswald 1970b: 225 n.3 now notes his statement on brass moulds at Alton was based on faulty information).[25] It seems highly probable that Chalkley, who is a far from accurate writer, misidentified the pipe-case for a pipe mould. The possibility of moulds of wood and sheet metal, however, and for that matter simple wooden ones (cf above p.142), should be borne in mind, for such improvisations could have quite easily been produced, but there appears to be no actual evidence that they were used.

A simple "do-it-yourself" pipemaking machine is described by A. and C. Scott (1966: 51), but these authors are so inaccurate in much of what they recount which can be readily recognized as to source that it is difficult to accept much of what they say on other, less readily verifiable, matters - for example, after correctly describing (*op. cit.* 50) the roll from which a clay pipe is made as being thicker at one end than the other, they then say a "blob of clay" was put on the thicker end to form the bowl, which suggests they are conflating sources, the "blob of clay" part coming from some mid- or later C19 encyclopaedia such a Ure's (discussed pp263-5 below) and perhaps originating in Brongniart's apparent misreading of Diderot's account (discussed pp124-7 above); and they then assert (*loc. cit.*) that the wire had a short upward curve, a feature which would have made it quite unusable but presumably thought of by the authors as necessary to reach into the upcurved bowl. The "do-it-yourself" machine they describe as being about a foot long, essentially a bipartite mould for the bowl only, and fixed vertically to a baseboard, one half being clamped to the other by means of a screw thread after the clay had been inserted. The bowl was formed by pulling down a lever which forced a plunger into the clay in the mould. A hole at the bottom of the bowl was probably made after the bowl had been taken from the mould, and after firing a stem of some material was fitted. The drawback about calling such a machine a "do-it-yourself" kit is that the would-be pipe-smoker would have to obtain, work, and fire his own clay; it is perhaps more likely that the machine was used in a poor factory, or by a travelling pipemaker. (Nowadays the problem of obtaining moulds in the British industry is acute, and Pollock's have one of their workmen with the right flair modify their moulds as necessary. When the German clay pipe makers in the Westerwald area wished to bring out a pipe with the effigy of John F. Kennedy they found that it would have been so difficult and expensive to have a mould made that they abandoned the idea. However, as already noted, the Van der Want factory in Gouda make their own moulds when necessary, using plaster matrices.)

As noted earlier, all modern moulds in this country are of iron and probably have been since the early C18, though earlier moulds appear to have been of brass. Presumably brass and subsequently iron were found to be the cheapest or most resistant to abrasion by the clay. In Poland, where quite different pipes - of earthenware - were made, clay or wooden moulds are noted as having been used in the later C17 (Świechowska and Dukwicza 1955: 155). In North Carolina, where a central Eurpean potter introduced in 1755 the manufacture of pipes in the Polish tradition, lead or pewter and brass moulds were used (see Section VII below). (Lead moulds cannot have given the best definition of design and must have worn very rapidly, but this was probably offset by the ease with which they could be melted down and recast.) Albright also notes plaster moulds in North Carolina and suggests, observing there is no opening for the "reamer" (stopper), that clay was pressed into them by hand and used only when fast and large-scale production was not needed. However, it is more probable, as has been noted when discussing the plaster mould in the Musée du Tabac at Bergerac and the Van der Want's method of casting new moulds, that these are matrices for the production of fresh metal moulds.

Chalkley suggests (1955a: fourth and fifth pages), on the basis of his own research in unspecified parish registers of East Middlesex (apparently - Oswald 1960a: 41 n.1 - Shoreditch) that there were connections between pipemaking and brass-moulding families: he finds the two occupations (the brassfounders being originally of gunfounding families) going on in close proximity to each other, and that the same family would interchange these two trades in succeeding generations. He also notes, regarding gunfounders, that they used a pipeclay lute for bands of ornamentation on their products. Chalkley also noted (in Oswald 1960a: 40-1) that pipeclay was used in other trades such as bellfounding, pewtering, and glass-making, and that these craftemen provided initial skills in the manufacture of moulds, firing of pipes, and other aspects of pipemaking.

Chalkley also has something to say (third page) on the preparation of the clay prior to its being taken to make the rolls. According to him, broken, misfired, misshapen, and otherwise spoiled pipes were ground in mortars into a fine powder, and this was added to the elutriated clay in proportions of between one in three and one in five. It was inhaling the fine, burned, dry alumina silicate during the grinding and sieving, he says, that caused a form of silicosis resulting in death from what Stepney parish registers called "consumptions". Hence, he says, the usual apprentices in the trade were orphans, abandoned children, and the like. He claims this last point is noted in the Bristol apprenticeship rolls, but in anticipation it can be said there is no evidence there to bear out this contention. According to Chalkley (3rd page and n.4, 4th and 5th pages), all English pipes were made this way until ca.1745; this fact, he alleges, has been almost unknown and derives from the pipemakers' drawing their craft lore from other trades than that of the potter - "glassmaking, etc".

Little reliance can be placed on Chalkley's assertions, and it is tempting to dismiss them all as nonsense. The preparing of ground pipeclay could cause lung diseases, and presumably it would be added to the clay as a grog to reduce the shrinkage in ballclay, a clay which shrinks a great deal in drying; but Pollock's had never heard of this being done and did not know what would happen if it were done, nor has this writer found any evidence which would support Chalkley's contention. Mr Pollock has promised, if he can find the time, to experiment with this composition. (Presumably a more refractory body with less shrinkage on drying would be produced, which could be fired to a higher temperature and would give straighter stems.) In view of some of Chalkley's other misconceptions it is possible that the ground-up fired pipeclay to which he refers was really that used, as for example by Southorn's and in C18 Gouda, in the saggars to prevent the stems warping during firing. G.B. Hughes, who like Chalkley is not a reliable source, makes a vaguely similar claim, alleging that by ca.1780 "whiter and more costly pipes" were being made from mixtures of china clay (i.e. kaolin), ballclay, and powdered calcined flint after the manner of the finer-bodied stonewares and earthenwares being developed from the early C18 onwards (see 2: IX); but there is absolutely no evidence known to this writer which would bear this claim out, and much evidence in the form of manufacturing accounts for before and after this time to suggest the story is totally false. It is true, however, that by the C19 clay pipes frequently have a plastery texture: this appears to have been caused by the use of stiffer clay, and is discussed on p. 199 below.

As to Chalkley's references to manufacturing methods deriving from industries such as pewtering, glass-making, and the like, there is nothing in the source he gives to warrant such an interpretation; nor is there any evidence in any of the literature on pipemaking (including contemporary sources going back to the C17) known to this writer. (The source given by Chalkley - his note 4 - is "Cyclopedia of Useful Arts, Knight 1851. Glassmaking, etc." This is a completely inaccurate reference, and appears to conflate two sources - the well-known C19 encyclopaedias of Charles Knight and Tomlinson: the relevant entries in neither of these publications bear out Chalkley's contentions.)

Parsons (1964: 234 and n.15) suggests the choice before 1650 of Gateshead on the south side of the Tyne as the pipemaking centre in the North-East in preference to Newcastle on the opposite bank may have been due to the prior existence of industries there already using pipeclay, and he suggests glassmaking as the possible connection; but elsewhere (p.235) he cites Oswald (1960a: 40-1) noting the use of pipeclay in bell- and gun-founding, pewtering, and glassmaking, and Oswald is in turn citing Chalkley (cf Oswald 1970b: 235-6). According to H.J. Powell (1923: 93) coal, fireclay, and water carriage were the chief attractions of the Newcastle region to glassmakers in the early C17; and at Stourbridge (H.J. Powell 1923: 100-1; cf Angus-Butterworth 1958: 370-1) it was again the coal and in particular the clay - held to be the best in the country for making glass-foundry crucibles and furnace-linings - which attracted the industry there. This clay, described by Plot (1686: 121-2) and referred to as Amblecote clay, is a refractory fireclay (H. Powell 1968: 18); such clays are regularly found in the Coal Measures clay formations (Adams 1961: 19, 14 table II). Analyses of Stourbridge fire clays are noted below, in Section IX.

The addition of clay to the batch in glassmaking is known, but presupposes no relationship of glass-making to pipemaking (or, for that matter, to potting). The use in this fashion of "brick-clay" is noted in an early C19 encyclopaedia (Rees 1802-20: s.v. Glass, common green bottle) where a composition quoted from Loysel's Essai sur l'art de la verrerie (1800) for "a good and cheap material for bottle-glass" was as follows: "100 parts of common sand, 30 of varec (a kind of coarse kelp made on the western coasts of France), 160 of the levigated earth of ashes, 30 of fresh wood ash, or any other kind of ash, 80 of brickclay, and any quantity, generally about 100, of broken glass." What effect 80 parts of brick-clay out of 500 would have on the mixture is uncertain, although presumably it would add silica, alumina, and iron (see analysis of common red clay in Section IX below) - iron, which would already be present in the mix from the sand, would certainly make the glass green. A compositon of "common sand, lime, some clay, and impure alkali" is noted in 1855 for manufacturing green bottle glass (M.F. Rogers jr 1963: 27). In 1894 one Arthur P. Ayling of Milwaukee patented a batch for "German green glass" which comprised clay "preferably in the form of pulverized or broken brick", ordinary sand, and salt-cake (sodium sulphate) in the proportions by weight of ca.100, 100, and 40 respectively (United States Patent 522,001 26 June 1894), and the next year Ayling patented a batch for amber bottle-glass which consisted of sand, finely crushed furnace-slag (which is mainly silicate of lime), clay - again preferably pulverized or broken brick - and salt-cake in the proportions of

140, 70, 50, and 70 (United States Patent 552,091,31 December 1895). In both cases the clay used was a local Milwaukee clay which produced cream-coloured brick, and the preference for it to be in the form of broken brick was because the clay was in better condition for melting in this state (it was also cheaper to obtain). However, it was stated that other varieties of clay could be successfully used. The use of pipeclay, which is virtually iron-free, in the batch occurs in one of seven formulae for what is called Bohemian Crown Glass: seven parts of pipeclay are listed together with 650 parts sand, 225 lime, 200 soda, 250 cullet, and 7 nitre (Biser and Koch 1899: 84-5). Crown-glass was substantially clear and used for such things as windows - it thus had to be iron-free, so the absence of brickclay is understandable, and another observer (Bastow 1920: 57-8) notes that in the making of optical glass a mixture of china and ball clays was evolved to replace ordinary clay in the batch because the latter was found to contain ca.2-4% iron whereas the china clay-ballclay mixture had only ca.0.4%. A British patent of 1856 (number 2537, L.J.F. Margueritte) notes that certain clays could be used to produce green bottle glass while kaolin could be used for window and mirror glass. The need for this addition is not explained, but Bastow also notes (1920: 38-9) that china clay (kaolin), being a silicate of alumina, was used as an opacifier (i.e. to make glass opaque) and that it also had the property of absorbing the attack of the fluorides on the clay body of the crucible. As crown and optical glass had to be clear, the reason for adding ballclay to the batch is still not obvious, but at least in the small amount in the formula noted above it may have been to absorb the fluorides. (I am grateful to Miss O. Jones, who is in charge of glass research with the Research Section of the National Historic Parks and Sites Branch, Department of Indian and Northern Affairs, Ottawa, for references, discussion, and help; and to G.B. Hares, Senior Research Associate, Glass Chemistry Research Department, Corning Glass Works, Corning, New York state, for references.)

The only other reference to pipeclay in connection with glassmaking known to this writer occurs in an C18 encyclopaedia (Anonymous 1771: s.v. Glass) which notes that while English glass-furnaces were made of "sandy stones" and never of brick, French glass-furnaces had an outside of brick "and the inner part, to bear the fire, is made of a sort of fuller's earth, or tobacco-pipe clay, of which earth they also make their melting-pots" (by the beginning of the C20, by contrast, fireclay was being used by glassmakers for kilns and crucibles, according to the 1910 edition (the 11th) of the Encyclopaedia Britannica (vol 12 pp89, 90)). This 1771 reference may conceivably be the source of Chalkley's contention - Chalkley was always secretive about his sources, and frequently inaccurate (cf p.224 above) - but if so the reference specifically does not apply to England and gives no reason why a pipemaker should adopt glassmaking techniques any more than they should adopt pottery techniques from potters also using pipeclays (what technical aspects of the various trades were supposed to have been adopted Chalkley nowhere states). Indeed, perhaps a more curious feature is the relative rarity, prior to the development of large firms with varied interests in the C19, of connections between pipemakers and potters (Oswald 1970b: 236, cf 236-9; cf also Alvey 1973: 38 and Oswald and Hughes 1974: 142-3, 170, 169 for instances in Nottingham and the Chesterfield area and

Douch 1970: 58; 1971: 146 and *passim* for instances in Cornwall); and it is significant that at the potting community founded about the middle of the C15 at Potovens, near Wakefield, pipemaking families remained specialists among the potting families, in one case continuing in the trade from the mid-C17 to the mid-C19 (Brears 1968: 42, 40, 13; cf Butler in Lawrence 1974: 189).

Bell-making certainly made elaborate use of clay (there is a convenient summary of the process in the 11th edition *Enclyclopaedia Britannica* vol 3 pp687-8), but while the type of clay used is not stated there is again no reason why the use in common of certain materials by different trades should indicate that one trade derived part of its technique from another. The fact that Knight in the second half of the C19 refers to pewterers using brass or copper moulds to produce plates and dishes offers no reason to suppose that pipemakers, who also used moulds, should have had any intimate trade association with them. The reference to family connections between brass-moulding and pipemaking is of some interest, because as Oswald notes (1970b: 225), the use of metal moulds in pottery - aside from use in statuettes and applied motifs - did not come into use for everyday ceramics until the C18. However, it seems to this writer that the reasons pipemakers used moulds was probably the same as caused statuettes and applied reliefs to be so made: the items were sufficiently simple and small to be moulded. A clay tobacco-pipe, after all, is a very unsophisticated idea.

Pipemaking has a number of connections with several other trades which do not involve any suggestion of exchanging technical traditions. Parsons (1964: 235-6, 235) notes a strong connection between pipemakers and innkeepers in NE England and also pipemakers and grocers. The former connection has been noted elsewhere (T.P. Cooper 1907: 104-5; Lipson 1931: 282, 1956 ed; Atkinson 1965c: 95 n.12, rev ed 1969b; cf 2: VII), together with references to bakers and cooks making pipes in London in the mid-C17; and is a reflection of all three occupations using large fireplaces or ovens and in the case of the innkeeper having available a convenient clientele to buy the products. Fulfilling as they always have done the role of community or social centres, it is likely that public houses were major centres for the use and distribution of clay pipes from the introduction of smoking: as already noted, pipes bearing marks which possibly represent public-house signs are known from London as early as the first quarter of the C17 (Atkinson and Oswald 1969: 189 and 192, 191 fig 7), and similarly-decorated pipes are known from Chester in the earlier C18 (Webster and Barton 1957: 19-20) and from London last century (Atkinson and Oswald *loc. cit.* and 201). Certainly public houses were important markets for pipemakers by the C18 (Chandler 1957: 333 citing a source of 1706; R. Campbell 1747: 326-7, 1969 ed.) and continued to be so in this century (Anonymous 1856a: 92; Fairholt 1859: 179 n.; Christy 1907; M. Phillips 1918: 166; Fleming 1923: 237; Hermessen 1926: 325; G.C. Spence 1942: 57, 53, 60; G.E. Evans 1960: 82, 1967 ed; I. Knight 1961: 34; Daniell 1965: 61; J. Peterson 1968: 13; Hallgarth 1969: 34; P.K. Wells 1970: 21).[26] An interesting indication of the position of public houses on pipe use and distribution is the occurence on the sites of two contemporary inns at Caerleon of pipes in the one case from Broseley and in the other from Bristol, in the C17 (J.M. Lewis 1967: 106). The association with the grocers reflects a convenient method of marketing. Parsons also notes (1964: 235) an association of pipemaking and trunk-making in York, an association which does not appear to have an obvious explanation.[27] Connections noted in the C19 between pipemakers and the manufacture of whiting, distemper, and putty (Atkinson 1966: 276 n.2, 272, 273, 275; Triggs 1970 and C. Green 1973a; Cooksey MS 1)existed because of the use of pipeclay in the manufacture of these items.

In the C17 in Bristol, Thomas Monkes is recorded in 1656 as being a pewterer taking an apprentice to teach him pipemaking, though when he took another pipemaker-apprentice in 1669/70 he is noted only as a pipemaker; and in the 1630s Samuel Lewis is described sometimes as a smith and pipemaker, sometimes only as a smith, John Casy is described as an aquavitemaker and pipemaker, and Samuel Morris as a saddler and pipemaker. The reason presumably is either that initially pipemaking did not offer a good enough living in itself or else that these individuals, already set up in their original business - in each case pipemaking is listed second - branched out into pipemaking as smoking became rapidly more popular. The overall evidence - certainly the Bristol evidence - suggests pipemaking, at least until diversification of industry in the C19, was a specialist craft on its own, owing little to other trades.

Care should be taken not to read significance into fortuitous associations: H.J. Powell notes (1923: legend on map facing p.92) that Ratcliff in East London was the centre of the bottle industry in mid-C18 London, and Ratcliff and East London in general was a pipemaking centre; but the connection is surely simply that East London (as noted in 4: VI) was an intensely industrial area, full of small crafts, and that pipemaking, bottlemaking, and many other trades flourished side by side without any special significance. Certainly this writer has found no connections between Bristol's famous bottle- and glass-making industry and its pipemaking industry: for example, out of 347 pipemaker apprentices recorded in Bristol only two were glassmakers' sons (see 6: III).

The production of to make effigy bowls and other stub-stemmed pipes follows a somewhat different process to that used for ordinary clay pipes. McDougall's used kaolin for their effigy bowls and expressed surprise that Pollock's were able to use ball clay successfully. The simpler effigy pipes can be made with a normal two-piece mould and come with a standard stem (FIG 108 centre row, left and second from rt), but normally a three-piece mould is used and the pipes have a thick upwardly-curved stub stem to which a downwardly-curved vulcanite mouthpiece (the same type as used on brier pipes) is fitted. As the bore of the stem stub has to be wide at the stub end in order to take the vulcanite part, it is made not with a wire but with a curved and pointed metal implement, called a "poker" by McDougall's (cf reference in Anonymous 1900: 5) and a "bodger bar" by Pollock's (FIGS 113-114). The pressure from the stopper inserted into the bowl forces clay around the poker, thus forming the stub stem. A lump of clay is therefore frequently used instead of a roll; again, the amount of clay has to be judged by experience.

McDougall's positioned their poker so that it made the hole through to the bowl without the stopper hitting the poker point, but Pollock's, after the moulding, use a "borer" - a short, relatively thick "wire" (with a widened end) to push the bore through.

The third part of the tripartite mould contains the facial features (FIGS 116-117), so that the mould lines are thus not down the middle of the face but down either side by the ears. These mould lines are carefully trimmed so that the joints were invisible at a casual glance. The most delicate part of the work was what McDougall's called "scouring" - cleaning with a sponge - the face without marring the subtleties of the cheekbone modelling or the eyes, preparatory to varnishing the outer surfaces with shellac.

Daniell (1965: 60-1) describes the process of manufacture used by a native of Broseley, William Flanagan, who came to Leicester ca.1885 and manufactured pipes until 1919. The information came from Mr Flanagan's son, and as can be seen the processes used were very much more primitive than those described for other C19-C20 makers.

The clay was brought by cart and the lumps stacked in the yard of the house, the manufacturing being done in the Flanagan home. The clay was beaten until it was "mushy" and then rolled out flat, like pastry, on a table. It was then shaped into rolls and a length of wire threaded through each roll to form the bore. The end to be the bowl was then turned up and the blank put in a bipartite mould. The bowl was then put in a wooden vice called a "ginhead", and the metal "stopper", which hung from a cord from the roof, was plunged into the mould to form the bowl and connect with the wire in order to "make the draught". The wire was then withdrawn, the mould opened, and the pipe removed. The pipes were then put on racks to dry before "trimming".

The firing was always done at night, in a bee-hive shaped kiln. One side of the kiln was demolished after each firing in order to remove the pipes and prepare the kiln for the next firing. The pipes to be fired were placed against a central column of fireclay to form a pyramid with the bowls facing outwards. In order to keep the pipes in this position and for them to retain the heat at a very high temperature they were wrapped in old playbills collected from local theatres and the paper pyramid thus formed was covered with a mixture of clay and horse manure. The fire was lit and the kiln bricked up. (Unfortunately, it is not clear where the fire was, nor why it was lit before the kiln was closed.) Firing normally took from eight to ten hrs; when the fire had been allowed to go out the pipes were left to cool for five or six hrs.

All this work was done by Mr Flanagan himself, though his wife was able to help him; the remaining work was done entirely by Mrs Flanagan. She packed the pipes between sheets of paper in a large wickerwork basket and left early in the morning to sell the pipes, mostly to publicans who kept a supply in order to give them out free with drink and food. These were the cheapest pipes, and were sold to the innkeeper for 9d a gross. The people who bought them were chiefly local miners and coalmen.

Because of particular preferences, a varied selection of moulds was necessary. The very long pipes - 21-ins, 18-ins, and 12-ins - were in fair demand as late as 1914. One pipe mould with an elaborate bowl needed a three-piece mould: pipes made from it were sold wholesale at 6s6d a gross, and retailed at 2-1/2d each.

The description of Flanagan's business gives us a picture of the primitive working conditions and drudgery of the pipemaking trade and enables us to visualize earlier working conditions, for it is clear that Flanagan's methods derive from an earlier period. His was a small and struggling family business; there was none of the luxury of specialized employees to do the various parts of the manufacturing process such as there was in C19 and C20 factories. Flanagan was apparently unable to afford the head and handle to speed up manufacture; instead he had to insert the stopper by hand, which must have made production a long, laborious grind. The term "ginhead" was apparently transferred, rather curiously, to the press. His kiln too was primitive, having to be dismantled after each firing was over and rebuilt before the next firing, and he was apparently unable to afford the standard fireclay saggars.

We have here a picture of what pipe manufacturing must have been like generally prior to the end of the C18, for with the possible exception of a few manufacturers who were able to set up a large concern - such as the Robert Tippet family of Bristol in the latter part of the C17 and the earlier part of the C18 - earning one's livelihood by pipe-making must have been a lifetime's grind of hard work, long and (especially during firing) irregular hours, alternately affected by damp when mixing the clay, heat when firing, arduous work dismantling and rebuilding the kiln, painstaking work in trimming the pipes.

That a maker's wife assisted him, as did Flanagan's, is indicated by a number of instances of the widow continuing her dead husband's business and taking apprentices. J(o)ane Tippet, widow of the first Bristol Robert Tippet, continued to make pipes and take apprentices for at least a decade after her husband's death, and although she and her son Robert jr (who became free in 1678) used almost identical moulds and marks and therefore probably had some amicable agreement, the mother apparently remained independent and a pipemaker in her own right. The number of journeymen and apprentices a pipemaker might have would depend on guild regulations at least until about the end of the C17, after which time guild legislation was becoming increasingly a dead letter (e.g. F.H. Rogers 1949: passim; also 6: II); but the six workers noted by Houghton at the end of the C17 (Houghton 1693/4: 205) probably represent the strength of an average establishment - perhaps two journeymen, a senior apprentice, and a junior apprentice in addition to the master and his wife.

A number of allegedly contemporary accounts of pipemaking in Britain in the C19 are known to the writer, but all are brief. One (Porter 1832: 99-103), some 60 years after Diderot, presented a summary - at times a direct translation - of this account with added opening and closing paragraphs implying that this was how pipes were being made in England in the first half of the C19 (the clay used, he says, comes from Purbeck in Dorset). Porter gives no acknowledgement as to source, though in addition to the text he copies - in one case inaccurately - several of the Duhamel du Monceau-Diderot illustrations. One drawing he appears to have obtained from some other source. In the middle of the century one encyclopaedia

(Tomlinson (ed) 1852-4: II, 450) translates Duhamel du Monceau and uses his illustrations (and the inaccurately-reproduced one used by Porter), though the source is acknowledged and described as having "served as the text for most writers on this subject up to the present day" (he also appears to be quoting Brongniart). However, like Porter, he is guilty of leaving his readers with the impression English pipes were made this way. He too notes that the clay used in England comes from Purbeck. As late as 1911 the second, "revised", edition of Bourry (1897: 337-9, 1911 ed) describes pipemaking in what appears to be a mixture of Duhamel du Monceau's and Ure's (see below) accounts: the mould and stopper described and illustrated belong to the former, the making of the blank in two pieces and the muffle-kiln to the latter (though saggaring is noted as an alternative). Other writers or encyclopedia - and dictionary-compilers - e.g. E.H. Knight 1876: 2583-4 - are so brief in their description that they add little if anything to the account.

Another account, based on a visit to a factory near Whitechapel Rd, appears anonymously in an issue of Chambers' Journal in 1856 (Anonymous 1856a: 92) and is repeated, together with an illustration of a mould and head and handle and additional comments on them incorporated into the text, in Fairholt (1859: 176-8). Here, it is stated that pipeclay came principally from Purbeck - that is, the Poole area - in Dorset. (Poole was (cf Willan 1938: passim, 1967 ed) the principal supplier of clay for pipemaking throughout England from the beginning of the C17 at least the earlier half of the C18; see also Section IX below). The clay was broken and pounded with a rammer and mixed with water. When at a requisite consistency it is formed into long-tailed lumps. These are then taken by the moulder who threads them over a fine steel rod, the latter being "in the exact centre of the clay for the whole length of the pipe." This is then put in one half of the two-piece mould and the other half put over it, pins in one half fitting holes in the other. The mould is then put in the "press", which Fairholt appears to use as the term for the entire piece of equipment, including the head and handle (the head is referred to as a "strong beam"). The vice has iron plates. The handle is then brought down to push the "projecting rounded cone" into the bowl of the pipe, and when this is removed the superfluous clay is cut from the top of the bowl with a "knife", there being a slot near the top of the mould for this. (This part of the description is largely Fairholt's addition, and while accurate enough is probably not taken from direct observation otherwise the "projecting rounded cone" would probably have been given its technical name of stopper.) The pipe is then removed from the mould and passed to the trimmer, generally a women or a young boy. A "sharp steel instrument" is used to trim off the mould-line; the bowl is then "dressed to a neat shape", the mouthpiece cut smooth, the steel rod removed, and the pipe blown through before being placed on a rack to dry before firing.

This account appears to be standard, though the wire used to make the bore of the stem and the finisher's wire appear to have been thought of as one. Duhamel du Monceau notes that in northern France pipes were blown through after firing - blowing through them before firing, as noted here, may be another telescoping in recording, but it makes better sense in that flaws could be caught in time to be easily corrected, and by the time the pipes were dry enough to be trimmed they could be blown through. The slightly earlier account noted below also says the pipes were blown through at this stage. It is not certain what precisely is meant by cutting the mouthpiece smooth, as this normally appears to have been formed by the mould, but the source to be next noted also mentions this and it seems likely that it is a feature used especially in France and Germany (Pollock in litt. 14 March 1968) to finish off a moulded mouthpiece as indicated in FIG 117. (Duhamel du Monceau notes that the mouthpieces of French and Dutch pipes were trimmed after the moulding process, though not to form a mouthpiece of the type illustrated.) The head and handle is illustrated by Fairholt, though with a symmetrical stopper. This later is probably a generalized depiction by an artist, and is probably from Good, Gregory, and Bosworth (eds) 1813: pl 138.

A similar account, also anonymous, appeared about the same time, in 1852 (Anonymous 1852). The writer has a blase and condescending style, but describes the process in fair detail. The only part where he is vague is the moulding process - after the "tadpole" had been put in the mould it was "pressed", but there is no description of the press or how it worked. In other respects the description follows the general pattern described previously, including a reference to blowing through the still-unfired pipe. After trimming it is noted that the mouthpiece was cut even.

A brief account of pipemaking in the extremely poor area of St Jude's, where the C19 Bristol industry concentrated, appears in 1850 (anonymous contributor to the Examiner, 17 August 1850) and gives a valuable picture of the industry there at this time. The workers were mainly women employed in the various factories of the area. The woman whose work was described, however, apparently worked at home and sold to the factory, and had taken to pipemaking on the death of her husband to support three children still at home. Because she was not strong enough to be very expert (and also perhaps because she was less experienced than others longer in the trade) she produced only 9 gross a week or 1-1/2 gross a day (her gross was 180). Apart from paying a man to prepare the clay, she did all the work - rolling, moulding, and trimming - up to the firing stage, an indication of the attenuated state of an industry unable to afford specialist trimmers.

A ball of clay, its size estimated from experience, was taken in each hand and two rolls made, their bowl ends being larger than the stem. These were set aside to dry and harden in dozens, then "wired" (the term recorded). The next part of the description has apparently been slightly confused and compressed, for the reporter then notes that when the pipe was at the proper "temper" (the term he records) it was put in the mould, whereas in fact there cannot have been any further drying between wiring and moulding as this would imply. The observer then says the two parts of the mould were brought sharply together with a lever and this forms the pipe. In fact presumably the mould was closed in a vice and the lever was the handle which forced the stopper into the mould to form the pipe. This the pipemaker described as "hard work for a woman". After this the wire was withdrawn and the pipe smoothed or polished with a piece of iron (no mention is made of using a trimmer's knife). It was then ready for firing.

An account of 1832 (Weld 1832: 510-14) describes pipemaking at Knockcroghery near Roscommon in west-central Ireland. Both the business and the products appear to have been rather primitive. The clay, which came from a source some two miles away, occurred in irregular beds at varying depths resting on limestone gravel, and frequently contained large pebbles and occasionally fragments of sandstone. The clay was examined and washed, made by hand into small cakes, and dried in a "sort of stove" or near the kitchen fire. When the correct dryness was reached the cakes were broken into a fine powder, sieved, mixed with water, and "prepared for use". From this clay rolls were made, two at a time, by the moulder (this is the term Weld uses) and put in bunches of half-a-dozen each. The rolls were then wired and put in the mould.

The mould was then placed in the chest, which was wooden but lined with iron, and closed by a screw with a wide thread which enabled it to be rapidly closed by a handle "like that of an augur." A head and handle was used to form the bowl, the stopper being referred to as a punch, and after this "the pipes are passed in the usual process through the hands of the finishers, and finally are packed into the burning kilns, which hold about 140 groce each."

The writer comments that women were not allowed to do any work "excepting in some very slight and unimportant parts of the process", apparently because the journeymen on whom the business depended refused to allow them to be employed. The writer notes that in pipe-factories he had visited in The Netherlands women were used in different branches of the work, and also that there boys were used to roll the pipes, leaving the men free to concentrate on moulding. At Knockcroghery the "filling, pressing, and discharging the mould" was done five times in two minutes, and Weld said that a moderately steady moulder could turn out seven to eight gross a day "during the ordinary hours of working; but more might be done by exertion."

There were about eight kilns in the village, rather less than that number of masters, and about 24 journeymen moulders. The average production was ca.500 gross a week, though occasionally 1,000 gross was reached, a figure which had been the average production some years previously. They were sold for 1s a 12-dozen gross though formerly they had been sold at 2s6d a gross. The size and shape of the pipes were poor, and considered so even elsewhere in the county; their chief use (because of the smallness and cheapness) was at wakes. They were generally packed in small crates and bought by pedlars who hawked them round the countryside.

The moulds, which were locally-made were, however, praised for their workmanship - they were made by country smiths from iron and steel, but the pipemakers did not order sizes and shapes to satisfy town preferences. The iron moulds cost ca.25s a pair (probably this means the two halves) and lasted for several years; the vice screws lasted only about two years before repairs were necessary.

Several C19 encyclopaedia-entries may be grouped together as they have a number of similarities, particularly regarding their description of the firing process. These sources are Good, Gregory, and Bosworth (eds) 1813; Rees (ed) 1801-20; Hebert (ed) 1850; and Ure 1848 ed.

The first of these states that the clay used came from "Maidenhead, in Kent" (this appears to be an error, for neither Bartholemew's Survey Gazetteer of the British Isles, 9th ed 1966 reprint, nor the Census 1961:

England and Wales; Index of Place Names L-Z (1965) lists a Maidenhead in Kent; nor is Maidenhead in Berkshire known as a clay-producing locality). Lumps of this clay were purified by being disolved in water in large pits, the solution being well stirred and then poured into another pit where it settled and the water was run off. The clay was then beaten with an iron bar. The manufacturing process follows the standard sequence, although the wire is recorded as being withdrawn before the pipe is taken from the mould. "Curved scrapers" were used to remove the mould-lines and the pipes were then polished and smoothed by a piece of hard wood with a semi-circular groove.

The firing method described is the earliest description so far found by this writer of the use of a muffle-kiln in England for pipemaking. The kiln was of brick, with a firebrick lining. The muffle, standing free of the kiln walls, was made of broken pipe-fragments cemented together with fresh clay and hardened by firing. It is referred to in the text as the "pot or crucible". On one side there was an opening for loading the muffle which was closed with a similar mixture of pipe-fragments and clay. Inside the muffle were ledges to hold the bowls of the pipes to be fired; the stems rested on "circular pieces of pottery which stand on small loose pillars...set up for the purpose in the center [sic]." In firing the temperature was raised slowly and held for seven to eight hrs; the cooling was effected by closing the vent at the top of the firebrick lining with a flat plate of fireclay, from which it appears that the fire was allowed to extinguish itself from lack of oxygen.

Rees's description of the manufacturing process follows very closely that given above - although the source of clay is noted as being the Isle of Purbeck - and may well be a copy or from the same source. However, a much more detailed description is given of the kiln, which is again a muffle-kiln. By way of an apology "for introducing into our plates the implements of so trifling a manufacture" the writer draws attention to "the ingenious structure of the furnace, and the application which may be made of it to other and more important purposes" whch suggests that perhaps hitherto the muffle-kiln was not widely known, at any rate in England.

The muffle, as in the previous description, sat above the furnace and was separate from the kiln walls. Again, it is called the "crucible, or pot". Its base was constructed from pipe-fragments radiating from the centre; these were coated with a layer of clay at the circumference, pipe-bowls were inserted into the clay, and in these other pipe-fragments were placed upright to form the sides of the muffle. The lower part of the entrance to the kiln was kept permanently closed with an iron plate plastered with firclay, and the upper part, through which the muffle was loaded, was closed with brickwork; the corresponding opening in the muffle was blocked by spreading a layer of clay round its edges, laying stems of broken pipes across, and plastering this with clay in the manner of lathe and plaster work. The ribs which attached the muffle to the inner kiln wall were similarly made of pipestems covered in clay. The virtues of a muffle such as this were its strength combined with lightness, and the small amount of clay used. As with the previously-described kiln, several - six in this case - small ribs ran round the inside of the muffle at intervals to take the pipe-bowls so that too many pipes would not lie on top of each other and crush the bottom layers. In this manner 50 gross - 7,200 - pipes were accomodated. They were fired for from seven to nine hrs, the heat at first being increased only gently. The fire was regulated by a kind of damper covering the opening in the fireclay lining of the kiln: this was a sheet of coarse brown paper covered in a well-worked mixture of horse-dung, sand, and pipeclay.

Talking of crucibles used in furnaces in general, Rees notes that formerly the only good ones were those from The Netherlands and those called Hessian crucibles (cf Staal 1957: 46-8) - a remark to be noted later referring to Dutch-style saggars being used in the pipe industry may be an echo of this. To prevent cracking with extremes of temperature, which would happen to crucibles made purely of clay, a coarse powder made from fired clay, or sometimes pure white sand (metallic oxides, especially iron, had to be avoided) was added.

The third of the sources Herbert, noted is merely a resume of the above, both in its description of the manufacturing process and of the firing in a "pot" or muffle (Teignmouth in Devon is given in addition to Purbeck as a source of clay).

The fourth source, Ure, is in many respects similar in content to the preceding, but has some additional observations. The clay is noted as coming from the Isle of Purbeck and from Newton Abbot. It was worked with water to a fine paste, then either left to settle in pits or passed through a sieve. The water was then evaporated (by what means is not stated) until the clay was of a doughy consistency, when it was kneaded. It was then ready for use and a child made the blank in two parts - a cylinder for the stem and a lump for the bowl, which was added to the cylinder. After being set aside for a day or two to reach the right consistency the blanks were taken to the "pipemaker" who used a folding brass or iron mould. (This implies a hinged mould, though this writer has never seen one: G.B. Hughes (1961b: 1934) refers to hinged moulds, but he is an unreliable source, while Berry talks of hinged moulds but illustrates conventional ones (1963: 3, pl XI, also pls LX-X).) The rest of the moulding was standard, though it is said that only the end of the wire was oiled - again, the wire was removed before the pipe was taken from the mould. The finishing process, however, was divided into two in a manner reminiscent of the present Dutch process, the excess clay being removed with a knife when the pipe had been taken from the mould but two days' drying being allowed before it was "scraped [and] polished with a piece of hard wood". A workman and a child (presumably working as noted above) could easily make, it was said, five gross pipes a day.

The description of the kiln follows that in Rees, though the muffle is called here a "crucible, or large saggar" (the firing time given is 8 to 12 hrs).

There are certain points in the description which suggest one cannot accept Ure's account unreservedly - this writer still cannot see that making blanks for the bowl and stem separately was a practical method for making pipes, and Ure appears to imply that meerschaum pipes are fired the way clay pipes are, which is certainly untrue, though meerschaum when dug from the ground is normally quite damp and is dried for several weeks in low-temperature ovens prior to going for manufacture into pipes (Weber 1962: 25-7). The great difficulty with all encyclopaedia descriptions is to know how much has been uncritically rehashed from other sources, some of which may relate to another country and period and may themselves be second- or third-hand conflations (cf Celoria 1973: 11, 20ff). In particular, points such as whether blanks for bowl and stem were made separately or whether the wire was withdrawn before the mould was opened or after are not resolved because a series of encyclopaedias all repeat certain assertions (a point forgotten by some researchers - for scathing observations on this by Housman, written in his usual exhilarating manner, see J. Carter (ed) 1961: passim).

However, the descriptions in these four sources of the muffle-kiln used explains the fragments of what appears to be pipeclay with stem- and bowl-fragments in or on them which have been found on several pipe kiln sites but for which an explanation has so far not been found. These sites are discussed below.

A rather curious account of manufacture occurs in another C19 encyclopaedia, that published by Charles Knight of London (C. Knight[28] (publisher) 1851: 1702-3; repeated in Brabner (ed) 1884-88: cols 945-6). The clay is described as coming from Purbeck in Dorset and the description of the first part of the process is conventional enough, though compressed as always; but in the moulding process the bowl is described as being partially hollowed out with the finger and completed by the insertion "of an oiled stopper or mould [sic]". The most remarkable part of the account, however, concerns the trimming process. After moulding the wire was withdrawn, the pipe taken out of the mould, and the pipes "slightly smoothed over, and laid aside to dry". After drying for a day or two, the account continues, "any remaining roughness is removed by means of an instrument of bone or hard wood, and then the pipes are sometimes moulded a second time, and polished with a piece of flint bored with holes, through which the stem is passed repeatedly". Firing was done in what from the description was a muffle-kiln, the pipes being placed with their bowls against the muffle wall and their stems supported on "circular pieces of clay set up in the centre". One such "furnace", as the writer calls it, could hold "fifty gross, or 7,200 pipes" and firing time was eight or nine hours.

The origins of the peculiar trimming features noted here is unknown to this writer. The use of a finger to partly form the bowl and the two-part finishing process appear to indicate information from Dutch or French pipemaking, and a bone or wooden tool to smooth the stem is quite possible, but the piece of flint with holes bored through it with which to finish the stems has no parallel in this writer's experience and frankly sounds an extremely unlikely tool, as well as one whose use would take an amount of time unacceptable to the maker.

By the time Penn (1901: 164-5) was writing, all the clay used was said to come from Newton Abbot and Kingsteignton in Devon, from where it was sent to all parts of the world in "rough lumps, about the size of quartern loaves, weighing some 28 pounds each". In the factory the lumps were dried because clay absorbs water only when crumbling, then moistened, worked with a spade, and beaten with an iron bar until the consistency of putty. Masses of from 80 to 90 lb (which sounds very large) were served out to the pipemakers, who took the relevant amount of clay for the size of pipe to be made. The rolling process as described by Penn is unique in that the pipemaker used "boards fastened to the palms of the hand", though as already noted Pollock's sometimes use a board to finish rolling and McDougall's used a board on certain types of pipe. The rolls were then set aside to dry for ten hrs, then pierced and put in the mould and shaped. The pipes were then set aside to dry for another ten hrs before being trimmed, a job done by women with a "curved metal burnisher". After a day or two's natural drying they became "'chalk-white'" (a term Penn puts in inverted commas and which may thus have been a technical term) and are then ready for firing in saggars. They are fired for 7 or 8 hrs, and another 12 or 14 hrs are allowed for cooling. Unfortunately the source of this account is not given - Penn's closing remarks about the quantity of pipes fired at one time, now and compared to earlier times, and the very small rate of breakage in modern firing are borrowed from R. Thursfield (1863: 81) or E.T. Stevens (1876: 108, 110).

I.J. Williams, discussing the products of the Nantgarw porcelain, pottery, and pipemaking factory near Cardiff, gives (1932: 140-3) an account of pipemaking which one might assume to represent the methods used at that factory, which concentrated on pipe manufacture from 1833 until it closed in 1920. However, there is internal evidence that Williams tended to use typical or standard accounts to illustrate his paper when direct evidence from Nantgarw was lacking. For example, it is not clear whether his fig 6, a cross-section of a double updraught kiln, depicts the actual kiln at the pottery or not - it looks as though it might have been taken from an encyclopedia, and does not agree in detail (for example, roof slopes) with the kilns on the site illustrated in his figs 3 and 4. Fig 7, designed to show the heel of a pipe, is an illustration of a later C17 Broseley pipe (although Williams does not mention this) and is neither typical of heel pipes generally nor in any way connected with Nantgarw pipes. Fig 8, illustrating the stacking of saggars, is an illustration supplied by the Wedgwood firm, as the caption notes: it therefore presumably depicts saggars of pottery, so that to use it as an example of saggars of pipes (p.140) is misleading. In the account of pipemaking it is not actually stated that this was the method used at Nantgarw, and it is perhaps significant that it is not until production rates are noted (p.142) that a retired employee of the firm is quoted (he may also be the source of the wholesale prices for pipes, of the source of the clay used, and the source and price of the coal, all of which follow immediately (pp142-3).)

In any event, the account of pipemaking is brief but does include one problem. Williams says the stem and bowl were made separately. This assertion has been examined in detail when dealing with manufacturing in France (see above) and this writer is reluctant to accept this statement, believing it may have originated in a misreading, perhaps by Brongniart in the mid-C19 or perhaps earlier, of Diderot's resume of Duhamel du Monceau's monograph on pipemaking, reinforced by an enigmatic set of illustrations in Diderot apparently showing this method of pipemaking but unrelated to the Diderot article on pipemaking and unknown to Duhamel du Monceau. When

Williams talks about the clay escaping from the two parts of the mould when closed, he says that the clay is forced not only through the slot near the mould which takes the trimmer's knife but also through "escapement areas" which he indicates unclearly in his illustration (Fig 25 btm): in fact he appears to mean simply that clay escapes along the line where the mould faces meet, and this curious description suggests he is not familiar with the pipe-manufacturing process. Otherwise his description is accurate enough; the clay both for the pipes and white-bodied earthenware also made by the firm came from Newton Abbot in Devon.

In the saggars Williams says the pipes were laid with the bowl lying towards the outside and the stems to the centre resting on a clay block, and the saggars were then placed one above the other. The firing had to be carefully regulated to ensure the pipes remained porous; mouthpieces were varnished "invariably" a bright red or a grass green colour. At Nantgarw there were three kilns (pp112-6). One was for producing bisque porcelain, another was for glazing it, and the third was a two-storey updraught or multiple kiln (a type Williams says is common in Continental porcelain factories) which was used for firing the pipes among other items. In the lower chamber or storey the pipes were fired; in the upper, small varieties of pipeclay pots also in saggars. The entrances to both floors were closed and firing was done by one ground-floor set of fire-holes. Williams notes (p.116 n.1) that he obtained this information from the descendents of W.H. Pardoe who had owned the pottery from 1833 until his death in 1867; these descendents still lived in a house on the site. Coal, costing 15s a ton from Pwllgwaun Colliery, Pontypridd, was the fuel used (p.143).

According to a retired pipemaker with the firm, his output, when his wife and daughter assisted with cleaning the moulds and trimming the pipes, was 60 gross of 14 dozen each - just over 10,000 - which was about the average number which could be fired at one time in the kiln. Assuming a six-day week, ten gross or 1,680 pipes would have been produced daily, an amount which sounds extremely high (see 6: I).

The mention once more of the alleged production of bowls and stems separately makes this a convenient point to note a peculiarly bizarre method of production claimed by Harley (1963: 13) to be used for "making pipes by hand". The stem, he avers, is made "by rolling wet clay around a steel wire, which, projecting into the bowl to which the stem is affixed with slip, serves to keep open the smoke-passage." This appears to be the same extraordinary method described in an appendix to Diderot and discussed on p. 90 above; as stated there, wherever the Diderots obtained this account, it is quite impossible that clay tobacco pipes could have been manufactured by such a method.

An illustration shown in Hughes (1961b: 1934 fig 4) and said to date to ca.1820 depicts certain apparent variations in pipemaking otherwise unknown to this writer. One workman is shown rolling out a long-stemmed pipe in the Dutch fashion, i.e. with both hands forming the one roll. The wiring is shown in the orthodox manner, but the moulding process appears very strange. One man is holding up a rectangular plate which is apparently one half of a matrix for moulding three pipes (in this case moderately short-stemmed examples) simultaneously, while another similar plate for moulding two pipes together lies on a table. This latter appears to be fitted with a lid hinged to one side of the plate. In the background is a brick kiln or drying chamber, in two vertically-positioned openings of which are pipes loosely packed and standing on their bowls; this structure may be for stoving rather than firing as a saggar, in the form of a tall footed basin, lies in the foreground of the illustration, its pipes stacked conically with bowls at the bottom and the stems held together with a ring of some material, perhaps pipeclay as at Pollock's.

It is difficult to know how to judge this depiction. The style of the illustration is certainly primitive, and it is difficult to believe the moulding process has been shown accurately - for one thing, it is totally unclear how stoppers could have been inserted into the mould-plates shown and if they could have been inserted this method of production would have almost certainly have been more complicated and slower than the conventional method of production.

In a brief description of pipemaking in Colchester in 1906, Benham (1906) as observed above notes that Joseph Jennings, the last Colchester pipemaker - he had ceased work between 1907 and 1910 (Christy 1907; Gant 1959a: 4) - fired his pipes in a "closed coke-heated muffle...[for] some five hours". As noted below, archaeological evidence for a muffle-kiln elsewhere in Colchester comes from the earlier C18. The Jennings reference is the only one known to this writer where coke is used; the five hrs recorded for firing seems unusually short.

John Frederick Bryant jr, the Bristol pipemaker of the late C18 already mentioned, refers (1787: xxxiii) to his eyes being affected by the glare from the kiln fires, which possibly suggests the pipes were fired in something like an oven or an open fire rather than a true kiln, though Bryant does refer to kilns. He specifically noted (loc. cit.) that the firing process was called "burning" the pipes. To judge by complaints in 1664 (T.P. Cooper 1907: 104-5) that bakers and innkeepers were making pipes, and other evidence to indicate this (e.g. Cassidy 1895: 18; Oliver 1948: 151-2; Parsons 1964: 235 and 237), an oven could be used instead of a kiln for firing pipes.

The 1727 inventory of a deceased Arundel pipemaker, William Artwell, includes two pairs of screws and moulds and boards and "greats", together worth £3 5 6; two benches and a tub valued at 3s; and a beating block, trough, hogshead, firepan, and poker totalling 6s (G.H. Kenyon 1958: 106 and Atkinson 1972e: 39), while a similar inventory of 1671 for a deceased Spalding maker, John Fox, included three pairs of "skuers" (screws?), six pairs of "mowls" (presumably moulds), "4 doz of grates and mowles", a table, three benches and another listed separately, two chairs, six hooks, a "beaking" [sic - beating?] trough, and a block (P.K. Wells files). The screws are the chests of the modern industry, and the boards listed among Artwell's equipment could either be the shanking or dozening boards or the drying boards. The various benches, troughs, tub, and blocks are all straightforward equipment used in preparing the clay and producing the pipes, and the hooks listed among Fox's material may be the tool of that name noted earlier (and also below, when discussing Holme's catalogue of pipemaking tools) but what the "greats" or "grates" are is totally unclear.

Particularly perplexing is the entry in Fox's inventory of "4 doz of grates and mowles" immediately following an entry of "6 pr mowls": the whole Fox inventory is filled with obscurities of spelling, and while 6 pairs of moulds is a reasonable number, several dozen more seems unlikely in the extreme (unfortunately values are not listed). If the Fox entry can be relied upon, its entry would suggest "grates" were specific items rather than a mass of material. Tantalisingly, "grates" are referred to in a poster advertising the sale by auction of the "stock, plant and utensils" of the business of Ebenezer Church of Pentonville, London, as late as 1894 (original poster in possession of Miss E.J. Church, copy in this writer's files). Here, after listing "moulds, benches, ginheads and screws, seggers [sic], vices", followed by some equipment not specifically connected with pipe-manufacture and 1,000 gross pipes, the advertisement ends noting a "quantity of useful effects, such as grates, boards, &c.", the last three words appearing in large thick capitals. In the lots listed below the advertising lines appear as numbers 8-11 and 14 the following:

20 10-in. grates
48 15-in. ditto
36 ditto ditto
4 18-in. ditto
24 old boxes and large grate

which frustratingly leaves the actual identity of the items as obscure as before.

An obvious suggestion would be that they were simply firebox grates, which would have been made of metal and therefore of some value, and the term was certainly used for these in the early C18 (see p.414 below); but how many kilns would there have to have been to utilize over 108 of them, and why should they have been of different sizes (whatever the various sizes listed actually do mean)? Even Fox's business, as noted above, had four dozen "grates and mowles", and his enterprise certainly cannot have been a large one. It is certainly difficult to see what wooden gratings would have been used for, except perhaps for standing above water when mixing clay, but again why so many and why the differing size? One speculation by this writer, that the term was used to refer to what Dutch pipemakers called gruys (modern gruis, grit) - ground and sieved fired pipeclay used to bed the pipes in the saggars preparatory to firing - seems certainly to be wrong (the idea was that with the known English origins for a number of Dutch pipemaking terms and English term "greats" or "grates" might have existed for this grit, but none of the C17 or C18 accounts of English pipemaking known to this writer note this use of ground fired pipeclay, though as recounted above (p. 168) Chalkley alleged - probably wrongly - that it was added to the clay mix in manufacturing English clay pipes up to ca.1745 and Southorn's of Broseley (p.143 above) certainly used it to bed their Churchwardens before firing and there is some evidence that the Broseley industry followed some very old traditions).

A remote possibility, but one which can almost certainly be dismissed, is that the grates were the special iron racks used to hold pipes when they were refired in order to clean them (J.S. Lindsay 1927: 69-70, figs 392-5, 1964 ed; Scott and Scott 1966: 44-6). This method of cleaning pipes, which burnt out nicotine and carbon, returned pipes to their original white colour but at some cost to their smoking qualities; and as is discussed later (p.414 below) it was a rather cheap method. It is unlikely in the extreme that pipemakers, who in fact relied for their livelyhood on the expendability of their product, would find this idea either attractive or profitable: the whole idea of these racks is obviously for home use or perhaps use by those such as publicans who were in the habit of passing out pipes to customers, often free, and were not above reusing their stock. Further, and even more decisively, it seems inconceivable that a maker would want as many of these racks as Church had "grates" - over 100 - when his business concentrated so much on high-quality products. Whatever these "grates" were, it seems likely they were special to the pipemaking industry, for a recent survey of 31 potters' probate inventories between the years 1662 and 1761 in the Staffordshire Potteries (Weatherill 1970), while listing a wide variety of tools and equipment - wheels, lathes, boards, shovels, pick-axes, paddles, baskets, pokers, hay for packing, heating flags, tiles, stools, benches, pack saddles, turning tools, moulds, and even "iron bands around the oven" - makes no mention of greats or grates: ironically, it would appear that the meaning of the term, a word clearly used in the pipemaking industry from the C17 to at least as late as ca.1900, now appears to be lost.

There is one contemporary account of English pipe manufacture at the end of the C17 (Houghton 1693/4: 204-6), though it is extremely brief and general compared to Duhamel du Monceau's account. A "good sort" of clay for tobacco pipes, according to Houghton, came from Poole, Dorset. This was dug out in square blocks weighing about half a cwt, and shipped thence to London where it was sold at ca.18s a ton, though when Houghton was writing (during the War of the League of Augsburg) the war had increased its price to about 23s a ton. A coarser type of clay came from the Isle of Wight, and this was often mixed with finer clay.

The clay had to be dried before being worked, and during this process it lost about a sixth of its volume. It was then steeped in water until it became a paste, after which it was beaten until it was homogeneous. From this, pieces large enough to make the pipe were rolled into blanks; the part that was to become the stem was pierced with a wire and the blank put in a brass mould. A brass stopper was put into the mould to form the bowl and the mould screwed tight in a wooden "mould" (that is, vice). The mould seams were then taken off by a woman with a knife, and the part thus treated smoothed. Houghton's remarks about the putting on of a "print" - presumably the maker's name or mark - are not entirely clear, but the instrument used was a stick with a hollowed top carved with the mark, which was used - it appears - on the stem. The pipes were then dried in the air or over a cinder fire - as Houghton says, "I presume coals that smoak will spoil colour" - and then fired in a kiln. The length of time for firing is not given, but Fuller, in his History of Worthies of England published in 1662 (quoted in W.E. Brown 1959: 242) and referring to the Gauntlett pipes made at Amesbury in Wiltshire, notes they were fired for 15 hrs. The "glased" (that is, polished) pipes were rubbed all over with a "smooth flint-stone" and "always dried over a fire" - this probably means (on analogy with Duhamel du Monceau's descriptions) that the pipes were dipped in some liquid prior to polishing, and then dried.

Six workmen made 60 gross pipes (8,500 to 11,000 depending on which gross is meant) a week, according to Houghton; the ordinary pipes sold for 1s6d a gross, the polished ones for 2s to 3s.

As well as being used for smoking tobacco, Houghton notes pipes were used to blow fires, and stem-fragments and specially-made pieces were used (by their being heated, to curl wigs (two pipe kilns discovered in 1970 in Helston in Cornwall and datable from the pipes found to the mid-C18 also produced a number of wig-curlers (Douch 1971: 148, 146)). Stem-fragments were also made red-hot and used to dry out gun-barrels which had been scoured. Powdered fired pipeclay would also take grease out of clothes if applied hot, and was also, Houghton averred, very good for whitening the teeth when rubbed on them (with what must have been disastrous effects to the enamel, as the two main constituents of ballclay, silicon dioxide and aluminium oxide (see Section IX below), are respectively quartz and corundum, both extremely abrasive; interestingly, however, abrasives used in modern dentifrices as whiteners or brighteners do include silica and alumina compounds in refined forms).[29] Houghton also quoted one source as saying that the clay used for pipes was the same as that used to make "chinaware" but he certainly cannot mean porcelain - he appears to be referring to a stoneware imitation of porcelain (see Section VII for further discussion).

The most valuable contribution to our knowledge of C17 English pipemaking, however, is a list of pipemaker's tools published in 1688 (Holme 1688: 271-2, 1905 ed). As material for this work was being already collected by 1649 it is fair to say that the descriptions given represent equipment typical of the second half of the C17 if not earlier. Unfortunately the precise use of a number of the tools is not given, but in some cases this can be deduced. The boards on which the pipes were "rolled to the length of their shankes" (i.e. stems) was called a 'shanking or smoothing board'. Two wires are described - one a 'moulding wire'

> to make an hole through the length of the shank. It is only
> a smooth wyer, set in a round handle

and the other a 'shanking wire', "onely a plaine smooth wyer, by which the hole is made through the pipe Shank". No mention is made in either case of the wire having a blunted or widened end, but both appear to fulfil the function of the modern wire. Possibly one has been confused with the modern finisher's wire, but from the terms used by Holme it is impossible to decide which wire might have been used for this purpose - the Birmingham City Museum wire is catalogued as a moulding wire (see above). The moulds were bipartite; some bore decoration and a number of different shapes, lengths, and styles were noted.

The apparatus for making the pipes was called a 'screw', and comprised a 'bench', a 'gin', a 'gin handle', the 'stay of the handle', the 'stopper', and 'brush', the 'runner', the 'trough', the 'screw and pin and box', and the 'cantril and screw'. The bench is described as having "four strong square feet", and the cantril[30] and screw fastened the rest of the equipment to the bench from underneath. The gin here appears to specifically relate to the head in the modern industry, for the stopper is described as being attached to the gin handle - this last being the handle of the modern industry. The stay of the handle is described as preventing the handle from descending beyond a certain point, which suggests it was a wedge fitted in the slot in the gin which took the handle. The screw was what is known in the modern industry as the chest, and the runner was the hollow of the trough - the term runner was used by Hamilton's of Belfast (see above). The brush is not described, but may just possibly be the slot - the pad of soft material faced with a sheet of metal fitting on to the vice faces. The screw and pin and box are described as being on the outside of the trough, from which it appears that the pin was probably the handle which turned the shaft attached to the moving face of the vice and that the screw was this shaft, though it may be the opposite way round. The box must be the fitting through which the shaft moving the vice passed through the trough - Hamilton's again used this term for this part of the instrument.

Quite a number of tools, apparently finishing tools, are noted; but their functions are not always stated. There was a 'hook tool', described as "a long Iron with a Bended end, set in a round handle, hooped" - this appears to be the tool in Birmingham City Museum, called a hook by Chalkley, and probably a tool similar to the Dutch smoier (see above). Holme also notes a 'head scraper' for making the bowl smooth, a 'burnisher' for polishing, a 'trimming smoother' also for polishing, and a 'rubber' presumably for similar work (these latter distinct from the 'shanking tool' specifically to finish the stems), which might suggest the hook tool was perhaps for a different purpose. Its name would certainly be applicable to the removal of the dottle or pep in the manner of the hook on the handle-end of the French estriqueux. Another tool is called a 'chisel' but its use and appearance are not noted - just possibly it was the tool used to make the denticulated mark round the bowl beneath the lip, if the chisel blade had a fine saw edge.

Three types of files are noted - a 'bullet file', a 'playing file' (neither of which is described as to use or appearance), and a 'split file', described as "an Iron rod thicker than a good wyer, it is bent a little from the handle to a square and then runs out streight", but their use is not stated. They may have been for reaming worn moulds.

A 'pen or shanking knife' is noted but no further information is given: however, it should be a form of trimmer's knife used on the shank or stem. The 'head scraper', however, was to trim the bowl, for it is described as

> like a knife with a bended point and as if an halfe round nick were broken neere it; or in some the hook end supplying that nick. It is to scrape away all the Mold marks and made the head smooth.

Thus it fulfils the function of the finisher's knife with its grooves used in the modern industry. A 'shanking tool', described as having hollows in it, and used to rub, polish, and smooth the pipe shanks, is the modern smoother - shanker is a term used in the Birmingham museum catalogue.

A surprising number of polishing or smoothing tools are listed. There is a 'trimming smoother' which was "to polish and smooth the pipe, when it is all made to that", which perhaps suggests it finishes off the work done by the head scraper and shanking tool; a 'rubber', described as "a plaine round Iron, with a Flat end, and set in a wooden handle hooped" which must have been some sort of polisher; and a 'burnisher', described as "a Rounde Steele, with a round end very smoothly polished". This last was probably the tool used to obtain the polished surface found on a number of later C17 pipes and referred to by Houghton as "glased" and by Holme as "gleased". It may have been similar in appearance to the agate or flint stone shaped into a cone and mounted in a handle used in The Netherlands.

Houghton mentions "glazing" - that is polishing or burnishing - pipes, and two Statutes of the Realm refer to the imposition of a tax from 17 May 1696 of 1s per gross of 144 on unglazed pipes and 1s6d on glazed pipes (7 and 8 Gul. III c.31, XLIX) which was removed two years later, 1 August 1698, as it was "vexatious and troublesome and very chargeable in the buying and collecting of same" (9 Gul. III c.45, I). To judge from pipes examined by the writer in collections in the south and west of England and South Wales, polishing of this kind only became common from about the 1670s, continuing into the C18 (cf Atkinson 1965c: 92, rev ed 1969b; 1973: passim). Bristol and Marlborough type 9 bowls were frequently beautifully finished. However, certain earlier pipes, such as the Gauntlett and Hunt pipes of Wiltshire and Bristol in the mid-C17, also had a stroke-burnished effect. Atkinson (1966: 273-4 and 276 n.6) noting a Sussex pipemaker of ca.1770 burnishing his pipes, mentions that this was a feature of nearly all Broseley pipes of the C17 and C18 - as noted above (p.147), this famous Broseley finish was apparently continued into modern times; the method of obtaining it is certainly still remembered there. An advertisement of 1799 among the pages of the Bristol Pipemakers' Guild Book and listing the products and prices of four Bristol makers included under their very expensive catagory of "long" pipes glazed and unglazed versions, but it is unclear whether this refers to the finely-polished finish or merely to a glazed mouthpiece, which latter feature was appearing towards the end of the C18 (see p.148 above). The "long" pipes were clearly prestige quality products, for they cost from 2s6 to 4s6d a gross compared to 1s8d for "common long" pipes and 1s-1s4d for "short" pipes, and glazing added another 6d a gross. Glazing was apparently only done to the premier-quality "long" pipes, and at a cost of 6d a gross extra it may have been stroke-burnishing which was done, which would have taken skill and time, rather than a simple dipping of the mouthpieces in a glaze.

Lastly, Holme notes the 'button', with which "the hollow in the head is made and dressed smooth within" - this indicates the main use was to smooth off the upper inside of the bowl rather than specifically round off the top of the rim.

No description is given of the firing; but a 'drier', a board of "wooden ribbs with cross peeces nailed over them to hold them together" and on which the finished pipes were laid for drying before firing, is described.

Perhaps the most interesting feature about this list of items is the existence as early as the second half of the C17 of the head and handle. Hitherto, the earliest definite reference known to the writer was that in Good, Gregory, and Bosworth (eds) 1813 (text and illustration). The head and handles in the various museum exhibits referred to previously presumably date to the C19, when the firms using them were flourishing, but the only one known to this writer which can be in any way dated is that in Birmingham museum, which was used by Thomas Reynolds between 1875 and 1893. The instrument may have come from an earlier business run by Reynolds and his father in the 1850s, and of course could have been bought by them from a still earlier manufacturer.

An advertisement in the Ipswich Journal of 17 March 1759 (quoted in Gant 1959b) announcing a pipemaking premises for let lists among items to be sold "the Moulds, Screws and other Utensils in the Business": either the head and handles were among the "other Utensils" or they were being kept with the premises, or, as with Flanagan's of Leicester 200 years later, this tool was not used. A similar notice of sale at Great Yarmouth in 1757 unfortunately talks only of "Stock...Tools...kilns" (Oswald 1970b: 239). Houghton, writing at the end of the C17, says a stopper was put into the mould but gives no indication as to how this was done, and one might have thought he would have noted a head and handle had one been used. A reference of 1701 (quoted in Harley 1964: 214) to a "Tobacco-engine and press" must refer to the equipment used in preparing tobacco (described in Holme 1688: 272-3, 1905 ed).

However, as early as 1619, the first charter of the Westminster pipemakers' guild (see 3: I) laid down that no person not a member of the guild should

> practice use or exercise the acte or mistery of makeing of Tobacco Pipes of any matter or forme whatsoever nor shall nor may erect or sett up or mayntayne any furnace Structure instrument of Engyn for the makeinge framinge or workinge of the saide Tobacco pipes....

and the reference here to an "engine" may indicate the use of a head and handle this early. If so, however, it cannot have been common or one would have expected the English pipemakers who were emigrating The Netherlands at the beginning of the C17 to have known of it (unless, of course, they voluntarily abandoned it in favour of the more tedious but more delicate process they are known to have used subsequently - for this possibility, see below). As will be noted in detail later, latex moulds of the insides of pipe bowls have been made in Ottawa - that of the one early (first quarter of the C17) Dutch bowl shows an asymetrical stopper was used, but this does not necessarily imply the use of a head and handle - it might more reasonably indicate the use of a simple stopper, finger-shaped (the finger may well have been the first stopper), thrust in just as Flanagan used. Unfortunately, with the exception of this single bowl, no Dutch bowls earlier than the mid-C18 were available for similar examination - by this latter time the symetrical acorn form was certainly being used, but this merely confirms Duhamel du Monceau's account of slightly later.

Other points of interest arising from Holme's descriptions is the use of C17 terms for parts of the chest at Belfast up to the beginning of this century, and the use of equally-old terms in cataloguing certain tools at Birmingham museum - unfortunately it is not known whether these terms were used by Renolds, the owner of the equipment, or not.

Another point of interest is the multiplicity of smoothing and polishing tools. This is probably connected with the appearance of polished - "glazed" - English pipes during the later part of the C17. This in turn may have been an attempt to bring English pipes nearer in quality to Dutch ones, for certainly by the 1690s the superior quality of the latter was being remarked upon (Houghton 1695/6: 1st page).

Specialist tools were certainly known in the pipemaking trade by the 1630s on the evidence of the Bristol Apprentice Rolls. Bartholemew Elliott, apprenticed to Edward Lewis in 1632/3 "for eight years, and one year without payment" was to receive "for interest" at the end of his apprenticeship tools to the value of 20s; and Richard Jones, apprenticed to the same master in 1637/8 "for seven years and one covenant year" was to receive at the end of his term "one Mould and one screw 2 toole belonging to the trade or xxxs [30s]". The "screw", on Holmes's evidence noted above, could include the work-table, but here it probably simply means the chest, which suggests that the Dutch term for the vice - *schroef* (screw) - may be a direct translation of the English term used prior to the introduction of the word chest. The prices given suggest one would need a minimum of some 20s to 30s-worth of equipment before one could set up as a journeyman, and more if one wished to set up as a master. Direct evidence for pipemakers' wages at this time is lacking, but 1s a week would probably not be far out (see 6: II). In 1654 more prosperous times are indicated by Lewis Williams being apprenticed to William Williams I of Bristol for seven years and one covenant year and being promised at the end of his term 30s as well as "a mould and a screw".

Later in the century, however, evidence suggests moulds had become cheaper. The estate of John Barnard jr of Bodmin in 1670 included "three pip molds with thngs usefull" valued at only 10s (Douch 1971: 147), while the 1676 inventory of the effects of a deceased Boston pipemaker, James Harford, included "2 pr. of... five pr. of moulds and other implements belonging to his trade" valued at £1 16 8 (P.K. Wells 1972: 13). The 1683 inventory of another Bodmin maker, Simon Earle I, lists "his moulds and tooles belonging to his trade" at £4 10s (Douch *loc. cit.*), which might suggest more expensive equipment; but similar lists for two deceased Norfolk makers, one dated 1674 for William Harpley of Great Yarmouth and the other dated 1691/2 for William Case of Downham Market, also gave low values for pipemaking tools, the former merely listing "all sorts of working tools belonging to the trade" at £1 and the latter "4 skines of clay with ye materialls to make tobacco pipes" all valued together at £3 4 6 (Oswald *in litt.* 11 October 1972). Indeed, yet another Cornish maker, Nicholas Hambly of Truro, had in the inventory of his estate made in 1690 "pipe moulds and clay" valued as low as 5s (Douch 1971: 150). Two inventories dated rather later, that for William Artwell of Arundel dated 1727 and one for Matthew Heblethwight of Lincoln dated 1729/30, bear out these low values, the former listing two pairs of screws and moulds and boards and "greats" totalling £3 5 6 (G.H. Kenyon 1958: 106 and Atkinson 1972e: 39; for a discussion of "greats" see p.271 above) and the latter listing merely "In ye shop ye working tools" valued at £2 (P.K. Wells files).

Deductions can be made about early English manufacturing methods from a study of the technical terms used in the present Dutch industry and from a close study of the pipes themselves.

It is recorded in 1748 that the names of the principal working tools of the Dutch industry were English (cited in Porter 1832: 103; Fairholt 1859: 167 citing Marryat's *History of Pottery and Porcelain*, p.65; and H.E. Smith 1860: 213 citing - erroneously - Croker 1835: 28). Further, certain of the terms, while English in origin, reflect words not recorded in the English trade by any of the written sources noted by this writer. For example, the term for moulder is *kaster*, and for mould, *vorm*. *Kaster* derives (Brongers

1964b: 37-8) from the English "to cast" - otherwise kast in Dutch is a chest or cupboard. Oswald (1961: 56-7) notes that about half of his type 2, datable to c.1580-1620, were hand made (comments on this in Oswald 1970b: 225 are less accurate - Oswald in litt. 23 October 1970), and as will be described in detail in the next chapter English pipemakers were emigrating to The Netherlands in the first two decades of the C17: this and the Dutch evidence suggests that the terms moulder and mould only came into general use in the English pipe industry after the Dutch industry had started and when the hand-shaping of pipes had gone out in favour of mould-shaping. It is thus probable that the earliest term in English for the man who shaped the pipes was "caster" and that the process was called "casting". (G.B. Hughes (1961b: 1634), talking of clay pipe moulds, asserts that "Sturtevant referred to such a press in 1614 [sic]" but Hughes is an inaccurate source and his reference, which is presumably Simon Sturtevant's Treatise on Metallica of 1612, does not appear to refer to tobacco pipe moulds.)

Similarly, the agglutinative Dutch term pijpenpotten for (pipe-)saggars suggests that neither the latter term nor any other specialist term had evolved by the time the English pipemakers had emigrated to The Netherlands, and this too agrees with other evidence, for the term saggar appears to be peculiarly English and not have come into use before the later C17 (see Appendix V). However, saggars are known long before the C17 - they have been found on several sites in contexts datable to the end of the C15 and early C16 (Mayes, Price, and le Patrouel 1966; Brears 1968; also in litt. 26 March 1968) while at a site in Nuneaton they first appear as simple adaptations of cooking-pots probably ca.1450 and evolve thereafter, as evidenced by finds at later kilns at the same site (unpublished; information from the excavator R. Thomson, Southampton City Museums, at the Autumn Conference of the Society for Post-Medieval Archaeology, Portsmouth, November 1968). However, no special term to describe them is known.

R. Thursfield (1863: 81) - quoted without acknowledgement by E.T. Stevens (1876: 108-110) - comparing contemporary pipemaking to that of earlier times, says that while pipes are now placed in saggars "after the Dutch mode" for firing, in early times they were rested on their bowls with the stems supported by rings of pipeclay (not fireclay) placed one atop the other as the kiln was filled. However, Thursfield said that this method resulted in at least 20% of the pipes warping or breaking in the kiln, whereas with the modern method not more than one per cent of the pipes break. (Nor surprisingly, he notes that modern kilns held far more pipes - whereas in earlier times a kiln did not hold more than 20 to 24 gross and took 15 cwt to a ton of coal to fire that amount a modern kiln could take 350-400 gross and use no more than 8 to 10 tons of coal).

However, methods of firing pipes appear to differ both with maker and type of pipe. Pollock's use the boisseau type of saggar for their Churchwardens, but they use round ones with bottoms for their small pipes; McDougall's used similar saggars for their small pipes, but rectangular ones with bottoms for their Churchwardens Pollock's prefer their method for Churchwardens because they find it gives fewer breakages and probably gives a better quantity-space ratio. As has been noted earlier, several other methods of potting pipes were known, and it seems likely that they represent traditional methods handed down rather than any real breakthrough in improved firing. As can be observed again and again, pipemaking has many of the elements of a primitive craft in its following of traditions of method and terminology. In the majority of cases these represent the father-to-son, master-to-apprentice method of learning the trade and its lore. The significance of certain features - if indeed there is any in many of the aspects - has often been lost in time.

It is possible, and would agree with Thursfield's remark, and those in Rees, that the Dutch were responsible for sophisticated saggars - this would be quite in keeping with their sophisticated methods of pipe production and striving for perfection.

Other words at Gouda which are English-derived (apart from possibly *directie*, as is discussed in p.109 n.10) are *weijer* for the wire or piercer, *smoier* for smoother, and *schenker(tje)* for shanker, another term for smoother, though apparently not used in the British industry at present. (In Britain the pipe stem is still called the "shank"). The term wire in the English industry is in widespread use, and its occurrence suggests that from earliest times a wire was used - as opposed to, for example, a straw surrounded by the clay which would burn out during the firing, a technique assumed to have been used by the Amerindians in North America. Yet another term which is of English origin is *tremster* or *tremmer* for trimmer (cf Brongers 1964b: 37-8). Neither the terms for wire nor trimmer has any similarity to the orthodox Dutch words for these terms.

At Courtrai, where the terminology is in the Flemish dialect of Dutch and presumably Dutch-derived, there are similar examples of English-origin words. Apart from *stopper* and the *trem-* root words (*tremmer* and *tremmen*), there is *rolle* for the roll, *weier* for the wire, and *smoetter* for the *schenkertje*. *Rolle* and *weier* are presumably only spelling variants of the Dutch *rol* and *weijer*, but the term *smoetter* is of interest because it suggests there has been a confusion between two rather similarly-shaped Dutch tools, the *smoier* and the *schenkertje*. The *smoetter* is not described in detail, but it is noted as being a curved piece of wire, which definitely equates it to the *schenkertje*, whereas the *smoier* has a curved, flat-faced, piece of metal: the apparent transfer of the "smoothing" name from the *smoier* to the *schenkertje*-type tool would suggest a confusion of terms, perhaps caused by dying traditions within the Flemish industry. (The fact that a late C19 account of Courtrai pipemaking refers to what is presumably the *smoetter* merely as an *ijzerken* (literally, small piece of iron) suggests the old terminology might have been fading by that time, which could account for terms becoming confused; the same account also called the wire simply an *ijzerdraad* (literally, an iron wire) and used the term *stuiker* (literally, stamper) for the stopper, again suggesting traditional technological terminology was becoming lost in the Flemish-speaking area of Belgium.)

Perhaps the most interesting word of English origin used in the Continental industries is the term "button" for the implement used to smooth off the rim of the bowl. In Dutch this becomes *botter*, a term otherwise used only for a fishing-boat. The German term, assuming a button was used in the Westerwald and Brandenburg industries, is unfortunately lost; but at Andenne the Westerwald-derived industry, its terminology albeit modified by Walloon French pronunciation and spelling, used *boton*, a word otherwise unknown. At Courtrai, the Flemish term is *bottom*, again a word otherwise unknown but in fact closer to the English than the Dutch term is. In North France, on the other hand, the term noted by Duhamel du Monceau is a direct translation - or a rationalization - of the English term and becomes bouton.

FIG 118 is a list of technical terms used in the countries of the studies which are, or possibly are, related among themselves (I am grateful to Mr R.G. Dening of the Centre for Modern Languages, Bath University of Technology, for assistance with the German terms and to Mr D. van der Want of the Zenith Plateelbakkerij en Pijpenfabriek, Gouda, and Mr P.H. Barkema and Mr E.G. Gerridzen of the Secretary of State Department's Translation Bureau for assistance with Dutch and Flemish terminology).

Unfortunately, few pipe kilns have been excavated, and only four - one in Boston (P.K. Wells 1970); one at Lewes (Norris 1971; illus. in Atkinson 1962b); one at Stamford (in Cherry 1973: 114-5); and one at Portsmouth, found together with fragments of three others (in Moorhouse 1972b: 204, 216-7, 218 fig 73) - have so far been published. One of unknown date was noted, but with no description of structure or of pipes found, at St Neots, Huntingdonshire (Tebutt 1956: 83). A C17 kiln was destroyed by a mechanical excavator at Potovens, Yorkshire, before its significance was realized (Brears 1965: 19; 1968: 13); and the site of a late C17 kiln was noted during the construction of a by-pass at Chudleigh in South Devon (Arch. Rev. 6 (1971) 45 s.v. Chudleigh; repeated in Cherry 1973: 114). An early C18 kiln at St Albans yielded "Several hundred clay pipe specimens...with other material including the brick base of the kiln" (Anonymous 1970b: 33), and a possible example associated with pipes datable to 1660-1750 but with no kiln-furniture was excavated at Peterborough (Dakin 1969: 164). Another, with flues and floor clearly traceable, was found in January 1869 built against the C13 wall of Bishop Langton's palace at Lichfield which had been destroyed by parliamentary forces in the C17. Several hundred pipes were found together with coal, clinker, and unburnt clay; the pipes are described as having bowls ca.1 ins high and 3/8 ins in diameter at the mouth. Presumably the kiln dates to the mid-C17, to judge from the historical evidence and the size of the pipes. Some of the pipes, including a complete but unfired example, were given to Lichfield Museum (Hewitt 1869).

Archaeological and documentary evidence indicates the Boston kiln, as noted earlier, was in use from ca.1850 to 1919, the business being run by two generations of the Manning family. Kiln-furniture found included saggars, mostly cylindrical but some rectangular, some made of fireclay, sometimes with pipe-fragments added, and some of pipeclay and pipe-fragments; rings of pipeclay on which impressions of bowls indicate their use to support stacks of pipes in the kiln; props made of pipeclay and roughly-crushed pipe-fragments which were probably used in the circular saggars to support cutties during firing; pieces of pipeclay fabric with stem-fragments and sometimes long stem parts for strengthening; and a slab of the same material which seems to have a peep-hole in it and was probably part of the door-blocking. The pipeclay rings occurred in pre-ca.1860 levels, the saggar fragments in post-ca.1860 levels, suggesting a change in manufacturing process about this time. The kiln appears to have been an updraught. It was one of a number in the area, and its foundation layer contained pipes and debris from an earlier kiln of the first half of the century, including a fragment of what appears to be fired pipeclay with a series of stem-fragments embedded in it, suggesting there may have been an earlier muffle-kiln in the vicinity. Immediately adjoining the kiln was the remains of a subsequently-built chamber with flues in its walls - this was probably where the pipes were stoved in warm air from the kiln preparatory to firing (P.K. Wells in litt. 20 December 1967 and 27 January 1968; paper delivered at the Spring Conference of the Society for Post-Medieval Archaeology, Lincoln, March 1969: see now P.K. Wells 1970).

The Stamford pipe kiln was also C19 in date. It and the attached shop belonged to George Longstaff, who probably took over an existing kiln from Robert Middleton ca.1845. Originally the kiln had been built into the shop with the chimney coming through the shop roof, and would have been fired from the ground floor and probably loaded from the second storey, but in 1873 Longstaff submitted plans for alterations to the kiln to permit him to fire it from the rear of the premises. Unfortunately, no more historical evidence is given; Oswald notes Longstaff at Stamford in 1850 (Oswald 1960a: 79), but does not list Middleton. The kiln was constructed of hand-made bricks, with a lining of fireclay bricks, and had an arched stoke-hole and metal fire-bars. "Crescent-shaped pipe supports", perhaps the same as Wells's pipeclay rings used to support stacks of pipes in the kiln, and saggars were found. Remains of an earlier structure were found beneath the kiln, but it was not possible to determine whether this represented an earlier kiln (in Cherry 1973: 114-5).

The Lewes kiln was another dated to the C19. The initial structure was associated with a few pipes attributable to two makers of the 1830s-earlier 1840s and was thus presumably constructed in the 1830s. Pipes attributable to three makers covering the 1850s-1870s were also found, and towards the end of its life - ca.1880 - the kiln had apparently been reduced in size, perhaps because of falling production. A large amount of the pre-1880 muffle (which the excavator throughout miscalls the saggar) was found, its walls being made of 2-ins thick fireclay strengthened with broken pipestems pressed horizontally into the clay. All of these stems which were marked bore the mark of an 1860s maker, Charles Corner, giving a terminus post quem for its construction and strongly suggest that Corner himself built it (Norris 1971). The excavator bases his reconstruction to a considerable degree on the description and illustrations in Ure's encyclopaedia already noted.

At Portsmouth remains of four pipe kilns datable from the mid-C17 onwards were found but only one was well-preserved, two of the others being represented only by fragments of the base and the third, which was rectangular, existing only as a base. The fourth was a single-flue updraught kiln of brick, and appears from the description to have been a muffle-kiln, two of the piers which probably held the muffle and remains of three linings of mixed pipeclay and pipe stem-fragments which probably constituted rebuilt muffles being found (see below). Wasters from the last firing bore the marks of two makers at present unidentified, but the bowls indicated a date of ca.1690-1700, presumably the terminal date of the kiln, and pipes of a ca.1670 date were found in the construction material of the kiln, suggesting the kiln dated to within the last quarter of the C17 (in Moorhouse 1972b: 216-7, 218 fig 73).

Fragments of pipeclay with stems embedded in it have been found on a number of sites. Fragments of what appears to be repeatedly-fired pipeclay have been found at Lambeth (material in Birmingham City Museum and Art Gallery) and Truro (material in the County Museum there), and Oswald (in litt. 3 February 1968) notes similar material is known from Southwark and Warwick. None of these finds is datable, though the Truro material came from an area known to have had C19 pipemakers working there, but dated material covering a wide range in area and time is known from several other sites. It has been found at Chichester, in a context probably of the first half of the C19 (Atkinson 1968: 13); in Bristol, from the Water St-Hollister St kiln apparently belonging to the John Okely F 1732 fl 1739 (material in Bristol City Museum), from the Whitson St kiln-site belonging to the Robert Tippet family and datable from associated pipe-bowls to ca.1680-1760 (Marochan and Reed n.d.), and from the Castle Green kiln belonging to Israel Carey II and datable to ca.1782-92 (seen by the writer in Bristol Museum November 1973; see also R. Jackson 1972); from the kiln of one of the Sidney family - probably Reuben, whose pipes have been found at Louisbourg, Nova Scotia, Canada (I. Walker 1971c: 76, 81, 86 fig 25) - in Southampton with a date from associated pottery of ca.1725-35 (ex info. R. Thomson, Southampton City Museums); in a kiln in Colchester where bowls datable to the earlier C18 were found in the clay (Gant 1960; in litt. 13 and 14 November 1968); in a kiln at Dorchester, Dorset, in association with bowls of late C17-early C18 shape (E. Watkins 1966: 224, 217); at Portsmouth, in one of the kilns noted above and datable to the last quarter of the C17 (in Moorhouse 1972b: 216-7, 218 fig 73); at Cambridge, where the stems were said to "resemble those of the pipes found here and there in the upper parts of the deposits, and do not any of them appear to be earlier than the second half of the seventeenth century" (T.McK. Hughes 1915: 24, pl I); and at Ipswich, where bowls in the clay dated to the second half of the C17 (Owles and Smedley 1966: 280 s.v. Ipswich - Portman Road).

In some of these examples the stem-fragments are neatly laid in groups, the stems in each group being parallel to each other and the groups lying at right angles to each other. The Colchester, Ipswich, and Bristol Tippet kilns yielded lumps of this mixture including bowls; in the Portsmouth and Bristol Okely kilns the stems were found sandwiched between two layers of clay instead of being on one surface. These layers are about an inch thick and the stem fragments are neatly laid out about half-an-inch from each other, unlike in at least some of the others where they are laid close together. The Portsmouth material has been fixed on one side at one time to something with a fine-grained surface perhaps wood. (The Colchester kiln is noted by Harley (1963: 35) but here, as on a number of other occasions, Harley is inaccurate. There is no evidence to indicate that the kiln was run by a Dutch immigrant, as Harley suggests, and the "Dutch" pipe bowls referred to are Oswald's type 9 which are sometimes called Dutch because of their supposed origin in Dutch styles influencing the English industry towards the end of the C17 - this point is discussed in 1: II(a) and 6: VII(a)(2). However, a description of pipemaking in Colchester 1906 refers to a muffle-kiln (Benham 1906 - see also above).)

As noted earlier, these remains seem to be the material described by four C19 encyclopaedias as being used to construct a muffle-kiln. There are some differences, the fragments found generally having the stem-fragments on a clay backing rather than in the middle and certainly in some cases definitely not all stems were long pieces nor lying in one direction; but if we allow for some variety of construction, these descriptions appear to fit these fragments. It is uncertain whether such construction was limited to muffle-kilns, but if so, it indicates existence of this type of kiln by the second half of the C17. The use of the term muffle for a crucible is first recorded in 1644, but its use was apparently restricted to chemistry and metallurgy, and its first recorded use in ceramics was not until 1742 when it was used to describe a muffle-kiln (OED vol VI). Duhamel du Monceau notes muffle-kilns - perhaps with muffles made of pipeclay - at Rouen by 1771, but Good *et al.* in 1813 describe muffle-kilns as though they were little-known at that date.

It seems surprising that valuable pipeclay should have been wasted in this way when presumably fireclay would have been cheaper. (The encyclopaedias simply talk of "clay" being used, without any further description.) Oswald (*in litt.* 3 February 1968) has suggested the material to be kiln repair or discarded stems in a remade kiln floor, and certainly broken stems can collect on a kiln floor (e.g. at Hamilton's - FIG 67 - and probably especially in kilns which were not downdraught). However, as noted above, R. Thursfield says - presumably quoting an earlier source though this is not stated - that before 'Dutch type' saggars were introduced rings of pipeclay were used to support the pipes, the rings being placed one atop the other, which indicates pipeclay was being used for props.

Duhamel du Monceau, as already noted, mentions pipeclay with iron and other impurities being set aside for *raccommodage des pots*. This literally means "pot repairs", but it is unclear what he means by *pots*. Elsewhere he refers to the inner chamber of the kiln as the *pot* or *chambre* and one might assume that it was to repair this that the pipeclay was used. Duhamel Monceau nowhere appears to use *pot* for saggar, but he does use the term *empoter* for the stacking of the pipes in the saggars ("potting" in the British industry) and *dépoter* for the unpacking of them, so it is not impossible that *raccommodage des pots* could mean "saggar repairs".

In 1968 the remains of a pipemaking premises at the Quay, Truro, were examined after demolition work. Here pipes were found stacked, apparently for firing, bowl-first into small Calenick crucibles. These crucibles were produced from ca.1770, when they were invented as the first successful British answer to the Continental ones hitherto used in asseying, until the early 1900s (Staal 1957) but it is strange to find them being used in this fashion, for it must have been an extremely inefficient method of firing. Calenick crucibles came in a whole range of sizes - those from the pipe-making site were 3 ins high, 3 ins in rim diameter, 1-3/4 ins in basal diameter, and bowl-like in shape (*ex info.* County Museum, Truro).

Work in 1967 by Miss E.A. Wylie of the Research Division of the National Historic Parks and Sites Branch in Ottawa under the general supervision of the writer has revealed certain facts about the early manufacture of English pipes.

Latex moulds were made of the interior of a number of English bowls covering a period from ca.1600 to the mid-C19, and these produced not one symmetrical shape. Instead, a series of types appeared, which preliminary work indicates might form a broadly-datable series, all of which suggest that English pipes from earliest times had their bowls formed by a direct thrusting motion from an asymmetrically-shaped stopper. As was to be expected, the latex moulds from C19 material produced shapes extremely similar to recent stoppers seen by the writer in museums or in recently-producing factories, or illustrated in accounts of recent pipemaking. Latex moulds from mid-C18 Dutch bowls, however, produced symmetrical, acorn, shapes, exactly the same as that illustrated by Duhamel du Monceau for Dutch (and French) stoppers. The latex moulds even showed fine striations, whether encircling bands or spirals is impossible to say, which had been made as the stopper had been turned round. However, the latex mould from a Dutch pipe datable to the first quarter of the C17 revealed an asymmetrical stopper, which reinforces the probability that the symmetrical stopper used with a turning motion was a Dutch invention. As the latter's use involved more expenditure of time and effort, one assumes that its introduction was deliberate and probably to obtain the sometimes shell-like delicacy of Dutch bowls. The moulds from British bowls, on the other hand, show vertical striations on material from all periods, emphasizing the thrusting use of the stopper throughout the history of British manufacture.[31]

Examination of the tops of pipe bowls indicates that the practice of cutting smooth the top of the bowl after the stopper had been withdrawn first occurs on bowls of Oswald's type 9, ca.1680, and onwards (the fine scratches from the knife can sometimes be seen across the rim). Earlier material, and later material of Oswald's types 7 and 8 which continue to ca.1720, were button-finished, a fact deducible from a thin line often visible immediately under the rim on the side of the bowl facing the smoker and a bevelled lip on the opposite side. This was caused by the button's not being set carefully enough on the rim, which on pre-type 9 pipes is at an angle to the line of the stem and therefore demanded care in fitting the button on - care not always exercised. Type 9 pipes almost always have the plane of the bowl lip parallel to the stem, and this feature may be connected with the non-use of the button. From this it seems reasonable to deduce that moulds did not have the slot to take the knife before type 9 pipes appeared. The slot is standard on C19 moulds, though a few are known which do not have this feature.

Towards the end of the C17 the denticulation round the lip of the bowl, applied neatly in the earlier part of the century, tends to become more and more haphazardly applied, becoming only a partial marking and disappearing on pipes of the 1680-1720 period. If this marking was put on with a saw-like blade or a thicker milled edge going round the foot of the button, as was done at Dunkirk and Gouda in the later C18, then its disappearance in England about the same time as the button might not be coincidence. However, at least on Bristol evidence, a perfunctory partial denticulation does occur on some type 9 bowls which should date to the early C18 and definitely have knife-finished tops. At Gloucester City Museum there is a type 9 bowl of Isaac Evans of Bristol free 1698 which should be datable to the first quarter of the C18 and is liberally decorated with criss-cross denticulation from a blade, indicating the latter's continued use at that time (see 6: VII(a)(2)). (Dutch pipes continued to be made with beautifully meticulous denticulation until at least the second half of the C19 (e.g. Friederich 1964d: 4 and C19 excavated examples seen by this writer; cf Atkinson 1972d: 177 n.5). The instruments used at one time at Broseley to make this marking and until recently were in the possession of the Southorn family (FIG 119) were known as mushrooms and were made of pipeclay (Oswald in litt. 19 May 1967; 1970b: 226, pl 200b). They were placed in the bowl and had a metal stem attached to the top with a cog-wheel at the other end which could be run (by the stem) round the bowl rim, and were thus not connected with the use or non-use of a button.

The mushrooms at Southorn's were very old, perhaps late C17-early C18 according to Oswald, which would agree with what is known about the use of denticulation as a decoration. No evidence for the use of the mushroom, nor for the tool itself, was forthcoming when the writer visited Southorn's in July 1968; a chart of Southorn pipe types probably belonging to the beginning of the C20 shows a few pipes with a type of milling below the bowl rim but it is impossible to say whether this had been applied by a mushroom or was mould-imparted. Mould-imparted milling below the rim, if this decoration was applied at all, seems to have been the invariable case elsewhere in the C19. (One of the Southorn types bearing this decoration is the firm's "Long Dutch Straw", which indicates that the Dutch tradition for this marking was acknowledged.)

Omwake (1963c: 4-5) says the technique continued well into the C18, but from the evidence available to this writer he feels this dating is too late. Omwake also says that the feature can occasionally be seen on pipes made during the last quarter of the C19, especially on those made in Ireland, but it is possible that Omwake had seen mould-imparted decoration (cf Oswald 1970b: 226, where he says the technique was revived in the mid-C19). Earlier (p.3), Omwake mentions an 1875 catalogue of a Waterford firm in another context - possibly the illustrations showed this form of decoration. In this writer's experience a genuinely-denticulated C19 bowl would be an extreme rarity; Atkinson (1972d: 177 n.5), agreeing that the tradition died out in England ca.1700, notes its reoccurrence in moulded form in the C19 but can cite only one English pipe of C19 date with true milling, a pipe of unusual quality manufactured by a London maker ca.1866. (There is a good deal of confusion about "Irish" pipes, because while pipes were manufactured there, at least in the C19, the words "Dublin", "Cork", and "Limerick" which appear on pipe-bowls refer not to their place of manufacture but to pipe types, and some examples seen by this writer do have mould-imparted decoration of the type under discussion.)

Whether the mushroom was an instrument in widespread use elsewhere is not known; as the Broseley industry has some unique features and appears to have evolved on its own to a considerable extent it is possible the mushroom may be peculiar to Broseley. However, no other tools for such marking are known, either in the present industry, museum collections, or in the literature, though clearly some tool for the purpose was in common enough use in the C17. No buttons are known to survive, though the evidence of the pipes themselves and Holme's C17 reference indicate they were common in the C17. (It was not unknown in the C17 for distinguishing marks to be put on pipe heels in the form of lines apparently made by either the instrument which applied the denticulation or the finisher's-knife (e.g. T.P. Cooper 1907: 106, 105 fig 6, 106 fig 7 third-fifth examples) - examples are recorded from Kingston upon Hull (Sheppard 1902: 25-6, 1912 ed) and this form of marking appears to have been common in Colchester (Cotton 1962: 59; Gant 1967a: 13).)

Another feature which the latex moulds show is the scar where the wire has touched the side of the bowl on the farther side of the bowl from the stem. As already noted in describing the present manufacturing process, the wire is inserted almost as far as the bowl, the stopper is then inserted, and then the wire is pushed fully in to complete the bore. In doing this, the wire often hits the farther side of the bowl, leaving the scar. The fact that this scar is found on pipes from the earliest times (and on Dutch pipes) indicates that the same process must have been used from the beginning of the pipemaking industry.

Jewitt (1863: 77; repeated in 1878: I, 295) says that the bowls of many of the older pipes have been scraped into form after moulding, and Harley (1963: 13) notes that older pipes were often hand-scraped into final shape. This writer has not seen any bowls so treated, but has occasionally seen scraped stems, though in his opinion these are more likely to have been the fault of a careless trimmer. However, though moulded pipes appear amongst the earliest groups, indicating moulds were being used from the beginning of the industry, hand-made pipes from the end of the C16 and the early C17 are known (Oswald 1970c: 225; cf 1960a: 56-7; Atkinson and Oswald 1969: 178 fig 1,1, 177) - Atkinson (1972a: 42, 45 fig 1) notes rare examples from London, Cambridge, and Portsmouth.

There are also differences in colour and texture which may reflect the manufacturing process, or rather the preparation of the clay. Modern clay pipes generally have a very white appearance and a surface which suggests a very wet finish before drying, and many pipes last century have a definitely plaster-like appearance. In the C18 pipes appear to have been a little less white than do modern pipes (though this is difficult to state definitely when they have been smoked and then buried in the ground) and to be made from clay a little less pure. In the C17 the later feature seems a little more marked - generally this feature takes the form of a very slightly sandy texture. It is possible that these various features reflect an improvement in the cleaning and preparing of the clay, though it may be that they also reflect different beds of clay. The brittle, plaster-like, consistency of many C19 pipes was probably caused by the use of dryer clay: dryer clay would be stiffer and thus stronger and better able to withstand the rougher handling of mass-production, and as is noted later, when discussing clays, clays for moulding need not be as plastic as others, but do need to be firm. (One of the drawbacks to using English clay that Duhamel du Monceau notes is that it takes less solidification on moulding and thus is more likely to break while in an unfired state.) Dryer clay would involve less working prior to use, less stoving time, and probably less firing time and less delicate temperature raising, all of which would cut down production time and costs. Several of the patents registered in the second half of the C19 for mass-producing pipes by machinery stress that stiff clay was to be used (see above). The frequency with which the remains of mould lines appear on C19 products also suggests that quality was sacrificed to quantity and that trimming was often rather perfunctory - piece-work payment, which appears to have been the common practice, no doubt also led to a lower standard of craftsmanship. As Ashton notes (1955: 97, 1961 ed), the skilled artisan with an apprentice and a journeyman or two "flourished wherever close attention to detail and the maintenance of quality were of special account": as mass and cheap production of pipes took over the market the demand for quality-made and -finished pipes such as those produced earlier declined, and with this decline went that of the small manufacturer.

SECTION VIII:
METHODS USED IN THE UNITED STATES OF AMERICA

Virtually no study has yet been made of clay tobacco-pipes produced in the United States, but though conventional white ballclay pipes were produced, the characteristic type made was an earthenware pipe, sometimes glazed, made with a bowl and a stub stem, into which latter a reed or similar stem was inserted. This type of pipe was being produced at Bethabara, North Carolina, from 1755 in the "Moravian" community there, a community largely of central European origin. The potter who made these pipes and other items, Gottfried Aust, was born in 1722 at Heidersdorf (now Łagiewniki), ca.25 miles SSW of Breslau (now Wrocław) in Silesia, now part of southern Poland (not, as Bivins (1972: 16) says, part of Czechoslovakia), and learnt his trade at the Moravian community of Herrnhut near Zittau in East Germany, where now the boundaries of Germany, Poland, and Czechoslovakia meet, where he was apprenticed in 1743; and as similar pipes were being made in Poland by the end of the C17 and being fired in exactly the same manner known to have been used at Bethabara, it seems likely that the Bethabara tradition of pipe, which still exists in the SE United States, derives from an East-Central European tradition (see also 3: III; the evidence is discussed in I. Walker 1971a).

The earthenware stub-stemmed pipe tradition is quite different from that of the ballclay pipes of England and the derived tradition of the rest of Britain, the Low Countries, France, and the Westerwald and Brandenburg areas of Germany, but there are a number of interesting parallels with the English and English-derived traditions in the manufacture which are worth noting.

The only relatively detailed description of the manufacture of these pipes relates to the Pamplin area of Virginia (Hamilton and Hamilton 1972: 7-8, 11-12; Apschnikat 1972: 3, figs 3 and 4; Heite 1970a; W.A. Thompson 1969). The Pamplin Smoking Pipe and Manufacturing Company, Inc., claimed at least latterly in its advertising literature to have been founded in 1739 (e.g. Hamilton and Hamilton 1972: 9) - 16 years before the Bethabara industry - but the evidence is fairly clear (Hamilton and Hamilton loc. cit.) that the firm was established immediately prior to 1880 and was in fact a branch of the Akron Smoking Pipe Company of Ohio (see below, p.209). The company was dissolved in 1952 after a protracted period a-dying, the firm latterly buying pipes made by local women after the Minimum Wage Law made it impractical to manufacture the pipes at the factory. The factory itself was sold in 1947 (Hamilton and Hamilton op cit. 11), though at least as late as 1969 part of it, and the derelict 200,000-pipe capacity kiln, still stood (ibid. 11, 28 pl 4 and 29 pl 5).

However, the tradition of making this form of pipe in the Pamplin area apparently goes back far beyond the arrival of the Pamplin Smoking Pipe and Manufacturing Company, and while it may not have been learnt from the local Indians (W.A. Thompson 1969: 13; cf advertising material of the firm illustrated in Heite 1971: 196) - Thompson suggests this is "very questionable" - the Hamiltons (p.4) believe the local tradition that the industry started almost as soon as the first white settlers arrived in the area is correct, and that the industry was well under way by the 1740s. It certainly seems probable that the suitability of the local clay for working would have been quickly realized, though strangely there seems little evidence for items other than pipes ever being produced (though the 1929 charter of the Pamplin Company notes among a varied list of interests the manufacture of "crocks and earthenware" (Hamilton and Hamilton pp10-11)); and the settlement of the area, as the Hamiltons note (p.3), was well established by the 1740s. This home industry aspect of the trade continued until 1953, when the last woman maker died at the age of 95, having made 500 pipes in her last year (Hamilton and Hamilton p.4).

According to the Hamiltons (loc. cit.) the home industry was practically speaking entirely one of white women, but Thompson (1969: 13 and 15) says that negro slaves also produced pipes, recounting a local legend that they had learnt the trade "from an aged white man who lived as a hermit and supported himself by making pipes" and noting that just before the American Civil War, 1861-65, the slaves of "a rich, old indulgent bachelor" were allowed to operate quite a thriving business manufacturing and selling these pipes. After the Civil War, in which so many men had been killed, the trade became especially important among white women.

Interestingly, a fairly crude stub-stemmed pipe with primitive incised stem-decoration has recently been found in a rubbish-dump in coastal Virginia with material deposited ca.1730; it appears to have been made with the aid of metal tools (Heite 1970b). Heite notes this is one of the earliest-known contexts in Virginia for such a pipe, though so far there seems no compelling evidence to indicate the pipe was made by Europeans. Its presence in this context, nevertheless, would indicate a tradition of this pipe type this early. A full report on the context of this find is to be prepared.

The methods used to manufacture these pipes, whether in the home industry or in the more mechanized factory industry, were straightforward enough. The factory used two-piece metal moulds - one dating from the late C19 and early C20 is in the Smithsonian (Thomas and Burnett 1972: 10) - and a machine to mould the pipes which had been invented in the mid-1840s by Calvin Merrill of the Merrill Pottery near Akron, Ohio (C.D. Blair 1965: 3). Different moulds could be attached to the machine, and it is described as being "foot powered"; but unfortunately, although illustrations of this machine have twice appeared (Heite 1970a: 118; Hamilton and Hamilton 1972: 30 pl 6) and both the Hamiltons (p.11) and Apschnikat (1972: 2) talk of the machine as being foot-powered, it is not clear just how the machine did work: the Smithsonian describes the machine as having "a single metal block mold that opens to reveal the pipe shape and receive a ball of clay; when closed by a single action, plunger pins from the top and side enter the mold to form the bowl and stem openings" (quoted in Thomas and Burnett 1972: 10). The Smithsonian suggests (Thomas and Burnett loc. cit.; see also pp 209-10) that the metal moulds were possibly made in an Atlantic Coast factory, but at least some were made locally at Pamplin according to one informant, who claimed a local man "had a shop and made many molds" (quoted in Hamilton and Hamilton 1972: 11). This last, however, may have referred to the firm's later years, when equipment would have become increasingly hard to obtain. Another Smithsonian suggestion, that "Local producers could have built their own apparatuses to hold and operate the block molds" (quoted in Thomas and Burnett loc. cit.) might be true, again particularly for the later years.

In the home industry, however, no such machine was used, and the moulds were much more makeshift affairs made from a piece of oak split and hollowed out and filled with molten lead to about quarter of an inch from the two openings in the mould for the mouth and the stub stem. When cold, the lead was drilled and reamed into the form of the pipe. The quarter-inch gaps at the top of the bowl and stem were then filled with lead and openings carved so that tools to form the hollow bowl and stem could be inserted to the correct depth. The two parts of the mould were attached by an ordinary hinge; they were held together with two wooden pegs which fitted into holes in one half and when closed fitted into holes in the other, and by a hook attached to a screw to one half which fastened over a screw inserted in the other half.

The clay used was a local very fine red clay which was mixed with water and when at the right consistency - a smooth dough - was rolled into pieces "the shape of a rope" and then cut into required lengths, rather as in the present Westerwald industry. In the last years of the factory's operation "some white clay from either West Virginia or Kentucky was shipped in by railroad" (quoted in Hamilton and Hamilton 1972: 3) which produced pipes of a lighter colour, at times light grey to white. The small cylinders of clay were then placed in the mould which was closed, and in the home industry a tool called by Thompson a bowl-reamer was inserted and rotated into the bowl part of the mould. The bowl-reamer was of wood, shaped with a handle narrowing to a collar larger in diameter than the rest of the tool and with a straight or diagonal slot ca.1/4 ins in width cut in either side of the collar. Below the collar was a symmetrical finger which formed the inside of the pipe bowl. The excess clay was forced by the reamer into the space for moulding the stub stem (called by Thompson the "shank cavity", which may indicate the stub stem was termed the shank) and also out through the slots in the collar of the bowl-reamer.

With the bowl-reamer still in position the shank-reamer, a similar but smaller tool, was inserted into the shank cavity and rotated, forming the stem bore almost as far as the bowl. This tool was then removed and the mould opened. The bowl-reamer, still in position, was used to lift the pipe from the mould and the mould lines were removed and the pipe generally smoothed with a "hooked-scraper tool". This was a flattened metal rod or a flat piece of metal with a shallow hook at one end, fitted with a wooden handle; in appearance it resembles closely the Dutch and German shankers. The bowl- and shank-reamers, Thompson says, had many different names: the most common was "stick", which is reasonable enough in view of their being made of wood, though one would like to have had the other terms to see whether any connection to the European manufacturing tradition might be postulated. At this point any identifying name - ORIGINAL, GENUINE, FLORENCE, and HAYITI (see below) are all known from examples - was impressed on the stub stem. These names were also used on the factory-produced pipes, as were POWHATAN, CATLINS, 103, and 117; the last three were raised inscriptions, suggesting they were mould-imparted.

The pipes, still with the bowl-reamer in position, were then either sun-dried on a board in summer or dried in a stove oven in winter. When this was finished the pipes were said to have "set-up". As they dried the reamer became free and was removed, and a piece of wire was pushed through the shank cavity to complete the bore into the bowl. Firing followed. At the factory, this was done in a large circular kiln (Hamilton and Hamilton 1972: 29 pl 5) which had a capacity of 200,000 pipes. The pipes were fired in circular, bottomed, fireclay saggars with holes irregularly places in the sides and bottom (Hamilton and Hamilton *op. cit.* 31 pl 7), the firing lasting for 24 to 48 hrs. The fuel used is not stated. On occasion the pipes were salt-glazed, the salt being thrown through an opening in the top of the kiln. The home industry, however, used a much more primitive method of firing, simply placing the set-up pipes in a cast-iron pot which was covered in split seasoned chestnut wood - used because it would not smoke - which was fired by fine kindling wood. The pot was allowed to cool after it had become cherry-red, and when the pipes had cooled they were coated with beeswax and mutton tallow and then polished with a woollen cloth. Black pipes are known from the home industry: the Hamiltons (1972: 6) suggest these were obtained by allowing burning wood from the fire to fall into the iron pot which acted as the saggar, and undoubtedly something like this - firing the pipes with wood or sawdust in the pot (cf pp 94, 117 above) - must have been used.

Stems 5 ins and 10 ins long were made of reed - a native variety of bamboo, *Arundinaria gigantea* - and at least latterly most came from the Dismal Swamp in SE Virginia (cf Caywood 1955a: 59), where they were cut in 12-ft lengths by men in boats, left to dry for six months, cut into shorter lengths, and reamed out. They were then tapered to fit the pipe shank and secured with a cork or something similar; some were put in a machine and bent. A high-pressure mill extruded the cork, which was cut off with a wire. In some cases a metal ferrule, apparently of brass, was used to attach the stem (Hamilton and Hamilton 1972: 19), but this may have been to take a more conventional stem similar to that on a brier pipe, for the type of pipe on which this ferrule was found (*ibid*. 44 pl 20,AA), and also several other types (*ibid*. 40 pl 16,L, 42 pl 18,S, 45 pl 21, AB-AE; cf Heite 1972a: 211, 212 figs 7 and 12), do not appear to be suitable for taking a reed stem - indeed, the Hamiltons suggest (p.19) that two of the pipe styles they illustrate (45 pl 21,AD and AE) may have been conventionally-stemmed clay pipes, though if so, and if Pamplin products, theymust have been very rare. In the days when Pamplin pipes were shipped to other parts of the United States and abroad they were packed in barrels in alternating layers of pine-needles (also known as pine-straw and pine-tags), or in sawdust.

An unopened box from the Pamplin factory contained two pipes complete with their reed stems and two spare reed stems, together with a leaflet describing the pipes in rather fanciful terms. In this instance the stems were 10 ins long (Heite 1971). These pipes, which had POWHATAN on the front of the bowl and ORIGINAL on the side of the stub stem, must represent the last Pamplin products. The stems were fitted to the pipes with small cork bands.

Terminology for pipe types is not entirely clear, but one key, apparently not discovered by the Hamiltons, is that earthenware bowls were called "hamburgs" and stoneware bowls "shakers" (Heite 1972a: 211). (Whether there is any connection between this latter term and the production of pottery pipes from before 1800 in a Shaker community in Massachusetts (L.W. Watkins 1950: 93) is unknown; a 1795 reference to these Massachusetts pipes incidentally, notes that the term "stail" was used there for the reed stem which went with the pipes, but no special term for the stem appears to have been recorded so far elsewhere.) According to Thompson (1969: 17), the home industry pipes fell into two categories, the "Zuvee", with a plain, slightly conical, bowl and stub stem; and the "Original", with a plain cylindrical body and an octagonal stem, which came in three sizes - small, medium, and large. In fact, the Pamplin home industry appears to have produced four styles marked ORIGINAL (one of them alternatively marked FLORENCE); and two of these, including the Florence style, were also produced by the Pamplin factory. In addition the home industry also produced a type marked GENUINE and another marked HAYITI, which latter the factory also produced,[32] and the factory produced a type marked POWHATAN. Further, the factory also produced a type marked CATLINS, and two others bearing the numbers 103 and 117 (Hamilton and Hamilton 1972: 15).

Specific names used by the factory and recorded by the Hamiltons (passim) were "Akron Hamburg", "Akron Shaker", "Ole Virginny Shaker", "Powow Shaker", "Wigwam Shaker", "Powhatan Original", and "Tomahawk". The term "Akron" is no doubt an allusion to the Company's Ohio origins and possibly represents a bowl-form brought from there; the "Akron Shaker" was produced for a time in later years, at least by 1941, and was similar in form and decoration to the "Akron Hamburg" but made of fireclay, suggesting the difference between Hamburg and Shaker pipes given by Heite is essentially correct and that it is a difference in body, not form. The "Powow Shaker" was similar, save for a single small rounded band of beading near the bowl lip, to the HAYITI-marked bowl referred to above. The "Powhatan Original" was not the same as that marked POWHATAN referred to above: this last was a version of the firm's novelty pipe, of which their "Tomahawk" was another version, the bowl being in the shape of a tomahawk blade - which naturally reduced its practicality - and in the case of the POWHATAN-marked pipe with a likeness of Washington on the right side surmounted by the name WASHINGTON raised and on the left side the likeness of an Indian in Plains head-dress with POWHATAN in raised letters above.

As the Hamiltons indicate (p.23), it is likely that when the factory arrived in Pamplin immediately before 1880 it adopted the local Original bowl form and also added the term Powhatan to its advertising, probably adding the former term to three other bowl forms subsequently. Thompson (1969: 17) says that the appearance of the mark ORIGINAL on Pamplin pipes was a later addition to pipes of this form, the earlier having been unmarked; the mark had certainly appeared by the 1870s, for bowls marked thus have occurred at Fort Stambaugh, Wyoming, occupied 1870-78 (R.L. Wilson 1971: 49-50, 80 fig 38), and also at Fort Sully, North Dakota, occupied 1866-94 (R.L. Wilson 1971: 50-51, 80 fig 39,C). At Fort Laramie, Wyoming, occupied 1834-1938, a Pamplin pipe marked POWHATAN on one side and ORIGINAL on the other was found (R.L. Wilson 1961: 125, 124 pl II,1; 1971: 10-11, 61 fig 5,C); however, this may be a late example, particularly in view of the late occupation of the site, as this double use of words - albeit with the POWHATAN on the bowl - occurs on the last products of the factory (see above) and in the final years when the factory was selling home-made pipes an identification tag with the heading "This Is An 'Original' Powhatan Pipe" was used (Hamilton and Hamilton 1972: 14, 36 pl 12). However, the term Powhatan, like the term Original, was certainly in use well back into the C19, for a box of Pamplin-made pipes was found in the wreck of the Bertrand which sank in the Missouri in Nebraska in 1865, the pipes being destined for a firm in Virginia City, Montana, and carrying the identification on their box THE CELEBRATED VIRGINIA POWHATAN (CLAY), J.R. FRANKLIN & CO., SOLE AGENTS FOR THE MANUFACTURERS, PAMPLIN DEPOT, APPOMATTOX COUNTY, VA. (quoted in Hamilton and Hamilton p.5) - Pamplin, originally called Merriman's Shop, had been renamed Pamplin Depot in 1854, becoming subsequently Pamplin City and finally simply Pamplin (Petsche (1974: 72) in giving the inscription has POHATAN and PAMPLINS DEPOT for POWHATAN and PAMPLIN DEPOT: both these spellings would appear to be inaccurate, but whether the error lies in Petsche's quotation or in the original inscription is unclear). The 95-year old woman noted earlier who made pipes until her death in 1953 claimed that the "Powhatan 'Original'", "Hamburg", and "Zuvee" or "Zoo" forms were some of the first pipe forms in the area (Hamilton and Hamilton p.6); bearing in mind that Hamburg referred to pipes of a certain firing, i.e. stoneware, or at least to a different clay body and not to a specific bowl shape, this claim seems reasonable - presumably the use of the term Original would have become necessary only when a second form, presumably the Zuvee, began to be produced. If so, the Zuvee must have been introduced by the 1870s, for as noted above Original-marked bowls have occurred in an archaeological context of 1870-78. The Hamiltons (p.3) found 12 different sizes of the Powhatan 'Original', suggesting it may have been either the oldest form, or the most popular, or quite possibly both.

The extent of Pamplin trade has yet to be examined - last century stub-stemmed pipes spread widely in the United States and occasionally into Canada(see pp 314-16), but how many were Pamplin-produced has still to be determined - but certainly it was widespread. Apart from the specific instances noted above of Pamplin trade to North Dakota, Wyoming, and Montana, an 89-year old Pamplin woman recalls local women trading their pipes for goods at her father's general store and that her father sent the pipes to wholesale houses from where

> they were shipped to the Cotton States and to the West. Large orders were filled for a tobacco factory in Pennsylvania, where they sold bags of tobacco with the pipes (quoted in Hamilton and Hamilton p.6).

About 1956-58 this woman and a neighbour dug up some of these pipes from the site of the store basement, sending some to a person in Atlanta, Georgia, who had happened to comment to her that these pipes were now unobtainable (Hamilton and Hamilton p.7). Further, it is said that at one time these pipes were shipped to Britain and certain countries in Europe (Hamilton and Hamilton p.10); indeed, according to Apschnikat (1972: 2) the factory "ceased to exist in the early 1940's [sic - as indicated above, it continued, albeit in a moribund state, until 1952] because WW II stopped planned shipments overseas and markets weakened".

(Sprague (1937: 1-2) illustrates a Pamplin-style mould and the two reamers - but not the scraper - and notes that the moulds he had seen were not hinged. His article unfortunately attempts to combine descriptions of American moulds with accounts of pipemaking from seven different C19 encyclopaedia sources, themselves of varying accuracy and based on both British and Continental practices (cf remarks on encyclopaedia accounts in the previous section).)

Although the pipe products of Aust and his two sequential successors at Bethabara, Rudolph Christ and Gottlob Krause, have been studied in detail (South 1965; 1967: 35, 49-50), few references have been found on their manufacture. An inventory of 1766 lists Aust with a tobacco pipe press and eight moulds, seven of which appear to be represented in the material found. In 1772, the year after Aust had moved to nearby Salem, an inventory listed him as having three lead moulds and one of brass, suggesting he possibly left four moulds for Christ. The pipe-fragments excavated indicate these moulds were bipartite, and while there are no detailed descriptions of the moulds or presses used at Bethabara, undoubtedly they would have been the same as the C19 and late C18 material recorded by Albright (1958) and Bivins (1972: 96-8, 175 fig 155) at Salem. Here again, lead or pewter and brass moulds (the composition of the last varying almost to bronze) were used. The two halves of the mould were fastened to each other with wooden or metal pegs set in one half and aligned to enter holes in the other half. Almost all the moulds described by Albright had brass, bronze, or iron plates screwed or soldered to the bowl rim; two had similar plates on the stem end. Thomas and Burnett (1972: 10-11) describe two moulds from South Carolina which were probably poorer versions of those described above, being made of soapstone and lead or pewter. These moulds came with two wooden handmade plungers to form the bowl-and-stem openings, and a wooden form was used to hold the two parts of the mould together when in use. The Bethabara moulds were clamped in vices, which could either be an ordinary carpenter's vice or a quite elaborate instrument, the equivalent of the chest and head and handle of the English industry but entirely different in form; they are called by Albright reamer vices, but Bivins, perhaps more accurately, calls them pipe presses - a 1793 inventory of Christ listed one valued at £12. This instrument comprises a block of wood about one ft long and 4 by 5 ins in section surmounted by a wooden or metal frame. In the centre of the block is a niche ca.2-1/4 ins cube cut out of one top edge to take the mould, which is clamped in position by a threaded crank at the right side of the block. Thumb-screws at the back and on the left side of the block centre the mould under the frame which holds the wooden or metal plunger or reamer which forms the bowl. This is on the end of a T-shaped handle; occasionally, as on the example illustrated in Albright 1958: 20 fig 4,e and Bivins 1972: 97 fig 30, the handle shaft was threaded - Bivins dates this example to the late C18.

A lump of clay was placed in the mould prior to its being put in the vice, the mould having been first greased. The reamer was turned a few times, the excess clay was scraped off the stem end (where presumably it had been forced out by the plunger) and another plunger, called a "peg", of wood or iron and with a wooden handle was inserted to form the stem. The reamers were then withdrawn and the stem bore completed with a wire attached to a wooden handle, and the pipe was removed from the mould and hung on a peg board to dry (cf Bivins 1972: 98 fig 31).

Of the five presses illustrated by Albright three are described as probably mid-C19 and the two better presses are dated to the C18. If this is correct then it may be assumed Aust's press was of this latter kind: whether the style was brought from Central Europe or not is unknown, but it bears no resemblance to pipe presses used in England; and the Dutch, Germans, and French did not use presses.

An examination of the cross-sections through Aust's pipes (South 1967: 50 fig 10) suggests he produced them in the above fashion - it appears, for example, that a wire or similar tool of lesser diameter than the bore of the stub stem was used to effect the junction of the stem bore and the bowl after each of the latter had already been formed (the "borer" used by Pollock's for this purpose for their stub-stemmed pipes).

The pipes were fired hanging on their bowls from clay pins which were fastened either to the outside of a cylindrical clay saggar or to the inside of cylindrical saggars which had a series of stepped-out shelves (South 1965: 52 illus; 1967: 49 fig 9, three illus on rt; Bivins 1972: 103 figs 38-9). Most of the pipes were unglazed, but about a quarter of those found in the excavation were black-, brown-, green-, mottle-, or clear-glazed (inventory figures for the end of the C18 and the early C19 (Albright 1958: 18) also indicate most pipes made were unglazed).

According to South, the saggar pins were made in two pieces and fitted together, but it seems likely that the "joint" is simply the mould-line from a bipartite mould (according to Bivins (1972: 103), the pins for the pipe-saggars were often simply rolled out by hand; a bipartite plaster mould was used to make the larger, stronger pins for supporting plates in the plate-saggars (1972: 102, figs 37 and 34).) The firing of pipes on pins attached to the outside of a vessel is recorded in the presumptively ancestral Polish material (Świechowska and Dukwicza 1955: 154-5 and pls 17-20). (These Polish pipes were made in bipartite clay or wooden moulds, and a yellow or green glaze was apparently standard. Unlike the Bethabara material, most of which was anthropomorphic, the Polish material was plain, though two examples bore a simple flower.)

Little is known about the actual firing techniques or the type of kiln used, but wood was the fuel used - in 1764 it was noted that Aust particularly liked oak "because it makes few coals and burns almost entirely to ashes" - and the kilns were almost certainly beehive-shaped updraught kilns (Bivins 1972: 86). Being of earthenware, the pipes would undoubtedly have been fired in the same manner and at the same time as normal earthenware products; for special products, such as Aust's creamware and Christ's tin-glazed earthenware and possibly his salt-glazed stoneware, special kilns were built (Bivins 1972: 87-9).

After firing, the pipes were ready to take reed stems. These stems, which were made from reeds found locally along the stream banks, were supplied with the pipes in many cases; but providing them does not appear to have been always the pipemaker's responsibility, an 1806 reference for example noting that a former pottery-worker was engaged in providing reed stems for one of the Philadelphia firms to which the Salem pottery sold their pipes and was wondering "whether any or all of his Stems & reeds were sold" (Bivins 1972: 174).

Albright also describes how the moulds were made. An iron pattern was placed on its side in sand and buried to half its depth. A metal dam was placed around it and the metal poured over it to the necessary thickness. The process was repeated for the other half. Plaster moulds are also known. Albright suggests they were probably not used when large quantities of pipes were needed, for although these moulds were easy and quick to make they could not be used in the press and in any case would wear out quickly. He notes two examples where there were no opening for reaming: these he suggests were used by pressing clay into one half with the thumb and then closing the mould, a relatively slow process which was commonly used at Salem to produce small, fancy pottery bottles. It seems more probable to this writer, however, that these plaster moulds were used as forms to produce the metal blanks necessary in the manufacture of new metal moulds. Certainly, one would not expect plaster moulds to be used in any process which necessitated vigorous handling such as the use of the reamers: not only would the moulds break in no time but pieces of plaster would flake off, and if mixed with the clay would be disastrous when the pipes were fired. Plaster forms, as already noted, are used at Gouda to produce the blanks for new metal moulds.

Besides South Carolina and Virginia, a third major area of production of stub-stemmed pipes appears to have been Ohio. Germans from Bucks County, Pennsylvania, where stub-stemmed pipes are known to have been made and which is adjacent to the Moravian settlement of Bethlehem founded in 1741 (I. Walker 1971a: 29) where Aust actually worked in the pottery for ca.10 months in 1754-55 before going to Bethabara (Bivins 1972: 17), settled in Ohio; and it is tempting to suggest that the Ohio industry, which was certainly quite widespread (C.D. Blair 1965: passim; Thomas and Burnett 1972; Murphy and Reich 1973), also derived from Moravian traditions. No systematic work has yet been done on Ohio stub-stemmed pipes, but as noted above (p.201), the Pamplin Smoking Pipe and Manufacturing Company established at Pamplin, Virginia, immediately before 1880 was a branch of the Akron Smoking Pipe Company of Ohio, suggesting the Pamplin factory method of production outlined earlier (pp202-4) would have been that used in Ohio; and Thomas and Burnett's excavation and research on an 1840s-1880s kiln site at Point Pleasant, ca.25 miles SE of Cincinnati in the extreme south of the state, where these pipes had been produced, also give some idea of Ohio manufacturing methods.

At Point Pleasant, the clay was "seasoned" - i.e. macerated - after being procured. Two-piece moulds were used, but none were found on the site. The reminiscences of a local octogenarian suggested they were two-piece iron moulds, two wooden plungers being used to form the bowl and stem openings. According to this informant, two long wooden levers were also used, but how and on what could no longer be remembered. This description, vague though it is, indicates some semi-mechanical device was used, and it is possible it was a machine of the foot-operated type used at Pamplin; like that machine, it evidently took metal moulds. A member of the Smithsonian staff suggested that "block molds were made, perhaps in an

Atantic Coast factory and then supplied to pipe making firms such as the one in Virginia [Pamplin] and possibly [the Point Pleasant site] in Ohio"; but as noted when discussing the Pamplin firm's production methods, at least some of their moulds were made locally, though this could have been a feature of later times, as sources of supplies dried up. The moulded pipes were allowed to dry for a time, then put - evidently in no order, to judge by a saggarful found in the excavations - in large perforated saggars, which were separated from each other by spacers. Illustrations (Thomas and Burnett 1972, 17 fig 4; Hamilton and Hamilton 1972: 31 pl 7) suggest the Point Pleasant and Pamplin saggars were essentially identical. Four fires, one at each corner (sic) of the kiln, were said to have been used, wood being the principal fuel. When a salt glaze was required salt was shovelled on to the fires towards the end of the firing, although fly-ash glazing may have been used to fire the pipes found. At Pamplin, as already noted, salt-glazing was effected by throwing in the salt from the top of the kiln; this may represent a different tradition, but effectively the two techniques are the same.

The stub-stemmed pipes found in a refuse-dump at Mogadore on the ESE limits of Akron by Murphy and Reich (1973) are probably products of the Akron Smoking Pipe Company which worked at Mogadore 1885-ca.1895, succeeding Fenton and Company who were in business 1883-85. By coincidence, the Akron Smoking Pipe Company also had a factory at Point Pleasant which continued in production until 1908; and apart from being the parent of the Pamplin Smoking Pipe and Manufacturing Company they also had another Virginia factory, at Hampton, which suggests the firm was an unusually large one. The Mogadore dump pipes are particularly interesting because the majority have letters or symbols raised on the bottom inside the bowl. If, as Murphy and Reich suggest, these are marks identifying Mogadore-produced pipes, they will provide a most useful means of establishing trade patterns (see pp313-14 below; see also now I. Walker 1975a).

SECTION IX:
PIPEMAKING CLAYS AND THEIR PROPERTIES

A discussion of the geology or geochemistry of clay would be an extremely complex project, and one far beyond bounds of this thesis. The fields themselves are not by any means wholly understood, to judge by published material. To quote Dienemann and Burre (1928: 32):

> Theory and practice in various countries have not yet established accurate specifications and classification of kaolins and clays based on their technically most significant properties. Many proposals have been made but none has gained general acceptance

and immediately preceding this

> Thus, for instance, 'stoneware clay' may be found at several different sites and even varies in technical properties from layer to layer of the same site. Determination of clay catagories based on their properties is therefore neither conclusive nor exhaustive.

Cardew's Pioneer Pottery (1969) is the most up-to-date technical survey of these fields from the point of view of ceramics manufacture, though much of it is too technical for this writer to follow easily. A good example of pragmatic description of clays is quoted in Shaw's History of the Staffordshire Potteries of 1829, part of which is as follows (S. Shaw 1829: 100, 1970 ed):

> Alluvial Clay contains a large proportion of quartz sand, and rounded pebbles of various kinds, showing it to have been carried from its native situation, and mingled in its process with a variety of extraneous bodies. Three kinds may be distinguished; viz. Pipe clay, potter's clay, and chalky clay. Pipe clay is of a greyish or yellowish white colour, an earthy fracture, and a smooth greasy feel: it adheres to the tongue; is very plastic and tenacious; is with difficulty fusible, though much more so than porcelain clay [described earlier], from which it is further distinguished by superior plasticity, and containing sand. It is manufactured into tobacco-pipes, and is the basis of the white or queen's-ware pottery. - Potter's clay is red, blue, or green; with a fine earthy fracture, and a soft, often greasy, feel; it adheres to the tongue, and is very plastic; burns to a hard, porous, red brick; and in a higher heat runs into a dark-coloured slag. When tempered with water, and mixed with sand, it is manufactured into bricks: the varieties most free from pebbles, are made into tiles and coarse red pottery. - Aiken.

Clay may be defined as an earthy mineral substance composed largely of a hydrous silicate of alumina, which becomes plastic when wet and hard and rock-like when fired. The more alumina and water, and the less silica and other oxides (especially iron), the purer the clay. For example, the following percentages by weight (Rhodes 1957: 5) relate to the surface of the earth as a whole; common red clay; and North Carolina kaolin, a clay composed almost entirely of kaolinite, a hydrated silicate of aluminium:

	Surface of earth	Red Clay	Kaolin
SiO_2	59.14	57.02	46.18
Al_2O_3	15.34	19.15	38.38
Fe_2O_3	6.88	6.70	0.57
H_2O	1.15	3.45	13.28

The theoretical composition of kaolin according to one source (Enc. Brit. 1960 ed: vol 5, 553) is 46.3% silica (silicon dioxide), 39.8% alumina (aluminium oxide), and 13.9% water; Cardew (1969: 19) who is probably more reliable, gives 46.5% silica, 39.5% alumina, and 14.0% water.

Clays may be classified either as primary or as secondary clays. The former, also known as residual clays, are formed in situ: one belief is that these clays were formed by ground water seeping through the rock and leaching out the more soluble components (so Rhodes 1957, 1973 ed) but another theory, at least for the origin of kaolin, a primary clay, suggests they are formed principally by hot aqueous solutions containing carbonic acid and compounds of boron and fluorine probably from a "hydrothermal" phase when they accumulated within the granite at a late stage in its cooling and consolidation (so Searle and Grimshaw 1924, 1959 ed; Adams 1961). These alternatives are not new - Fleming (1923: 39) refers to them; Cardew, discussing these theories (1969: 14-15), notes that the first and older theory, known as "deep weathering", has been abandoned as an explanation of at least the Cornish china clay in favour of the second, known as "hypogene" or "pneumatolytic" action. Certainly, kaolin is formed from the natural decomposition of feldspar, which is one of the principal mineral constituents of granite igneous rocks. Primary clays are very much less common than secondary clays, whose components have been transported, generally by water but also by glaciers or wind, to another site.

In typical deposits of primary clay, much unaltered rock remains and the clay is found in irregular pockets. Because it has not had the grinding or sorting effect on its particles that secondary clay has, primary clay is unsorted, relatively coarse-grained, and relatively unplastic. Once clear of rock inclusions, however, it is quite pure and free from non-clay contaminants, partly because most primary clay is formed from more or less pure feldspar, which is relatively easily broken down by water; and partly because not being stream-, glacier-, or wind-carried there is no opportunity for contaminants, either mineral or organic, to enter. Most kaolins are primary clays. Surface-weathered kaolins invariably have more iron-bearing minerals and thus tend to have brown, red, or pink tinges when fired.

Ballclays, on the other hand - defined by Searle and Grimshaw (1924: 295-7, 1959 ed) as clays which are sticky and plastic (i.e. easily worked) and burn white - are secondary clays, and thus in one way the opposite of kaolins, though they too originate in the natural decomposition of feldspathic igneous rock. According to Cardew (1969: 17), English ballclays are exceptional in that they seem to have been formed not by the slow kaolinization of feldspars through the ages by surface weathering but come from a washing-out of originally primary kaolin formed as noted earlier by pneumatolysis of Cornish grantite. This washed-out material was deposited in the Peter's Marland district of North Devon, the Bovey Tracy area of South Devon, and round Wareham and Poole in Dorset (FIG 120). These clays are unusually pure, though a considerable amount of woody material entered South Devon clays to become preserved as lignite and the Dorset clay, having been transported further, has become more diversified though sometimes less pure. According to Holdridge (1956: 369) the North and South Devon ballclays are in all probability lacustrine, whereas the Dorset ballclays may well be estuarine. Further, although the dates of these deposits are in doubt, the Dorset clays are much older than either of the other deposits (Holdridge 1956: 369-70). The only other major source of ballclays in Britain is in the neighbourhood of Lough Neagh in Northern Ireland, but these deposits contain too much iron to make them useable in the manufacture of white wares, though the lower deposits are often extremely plastic (A.R. Scott 1929: 2-3; cf below).

Ballclays have considerable variation in their composition, but compared to kaolin they tend to have a higher percentage by weight of silica and a lower percentage of alumina; they also have relatively large amounts of alkalines, iron oxide, and carbonaceous material. However, the amount of iron in ballclays and some secondary kaolins is exceptionally low for secondary clays. Kelso and Thorley (1943: 88) give the following typical analyses for kaolin and ballclay:

	kaolin	ballclay
SiO_2	45.00	49.99
Al_2O_3	40.25	32.11
Fe_2O_3	0.35	2.34
NaK_2O	0.81	3.31
CaO	-	0.43
MgO	-	0.22
H_2O	13.70	11.70

The following table compares analyses of a typical Wareham ballclay (figures from H. Powell 1968: 26) and the "blue" ballclay from South Devon (figures from Cardew 1969: 19, quoting A.R. Scott 1929), the already-quoted figures for North Carolina kaolin being added for comparison (a series of analyses of various English kaolins is given in Howe 1914: 195-7, one table (p. 197) comparing a ballclay and a kaolin clay; analyses of kaolins from a large number of other countries are also listed (pp197-226).

	Wareham	South Devon	North Carolina kaolin
SiO_2	50.76	45.60	46.18
Al_2O_3	33.52	35.48	38.38
titanium and iron	2.25	1.96*	0.57 - iron only
alkali	4.31	not given	not given

*iron 1.25

Ballclays - so called because they were originally mined in cubes or "balls" ca.10 ins across and weighing 30-35 lb (A.R. Scott 1929: 17) - are plastic, and much finer-grained than kaolin; the South Devon ballclays are composed chiefly of kaolinite, but the mineral is of a much finer particle-size than that of china clay. North Devon clays have a clay mineral of the livesite type which is fine-grained and thus plastic; and they contain more iron than do those of South Devon. The Dorset ballclays also appear to contain a kaolin mineral akin to livesite (Searle and Grimshaw 1924: 296, also 127-8, 1959 ed).

According to Holdridge (1956: 434-6) the whitest-firing ballclays come from South Devon and tend to be the "blue" clays (referring to their natural colour). The South Devon "black" clays, which contain more lignitic material, generally fire creamy-white. North Devon ballclays fire pale ivory or ivory, while Dorset ballclays fire to colours ranging from ivory through buff to red and in samples with very high kaolinite content a peculiar greyish-blue. The generally deeper colour of North Devon and Dorset ballclays relates to their generally higher TiO (titanium) and Fe O (iron) content. However, the effect of the iron depends on its grain-size and distribution, on the presence of lime or magnesia as a bleaching agent, and on the presence of lignitic material for example in the South Devon ballclay which tends to reduce ferric iron to ferrous and so lighten the colour (A.R. Scott 1929: 52-3, 1-2). As regards plasticity, Holdridge notes (1956: 405-8) that Dorset clays are the most plastic, that in South Devon the "black" clays tend to be more plastic than the blue (but that this does not hold good with the Dorset blue and black clays), and that siliceous clays (those with more than 60% SiO_2) generally have low plasticity values. In grain size (Holdridge 1956: 404-5) Dorset ballclay is the finest, followed by North Devon, and then by South Devon. The strongest ballclays, however, come from North Devon, with Dorset clays next and South Devon clays last. Within each group, black clays are stronger than blue - this is particularly noticeable among the South Devon ballclays (Holdridge 1956: 412-7). From these observations, therefore, it is clear that the ballclays from each area have their own characteristics, and indeed that there is considerable variation within samples from the same area (cf Holland 1958: 83). One Wareham firm lists 11 grades of ballclay (H. Powell 1968: 26), and no doubt early users of these clays were empirically aware of these characteristics. According to Adams (1961: 5), stoneware clays are the darker-burning and more siliceous varieties of ballclays - H. Powell (1968: 26-7) notes that some are more vitreous or fusible according to the silica and alumina content, and notes a stoneware clay from near Burton upon Trent in Staffordshire with a silica content of 59% and an alumina content of 25%. (For more technical comparisons among ballclays from the three main geographical areas noted above see A.R. Scott (1929) and Holdridge (1956).)

According to Searle and Grimshaw (1924: 297, 1959 ed), it is difficult to find better ballclays than those mined in England, a statement which is of interest when C18 comparisons of ballclays from various sources are compared for their suitability in clay pipe manufacture (see below).

In mixing clay or removing its impurities, the clay should be added to a relatively large amount of water, rather than the water to clay - this ensures the clay is thoroughly wetted and does not become a sticky partly-wet partly-dry mass. A blunger (a mixing machine with slow-turning paddles) can be used to keep the clay continuously but not violently agitated, or a relatively fast propeller on a mixer can be used. If the clay is lumpy, as one would expect when it is dug out of the ground, the blunger is to be preferred. Mixing with a paddle or stick is faster than might be supposed.

The fluid "slip" thus formed can then be passed through a mesh screen: with most clays a 60-mesh screen is sufficient to remove impurities, but for porcelain or other high-class whiteware a 100-mesh screen or one finer may be used. There are a large number of ways of removing the excess water, depending on the amount of clay, equipment available, and time available.

Aging most clays improves their workability, partly because the bacteria working in the clay develop organic compounds which improve the plasticity of it, and probably partly because the clay needs a considerable time to become thoroughly soaked. How long clay should be aged to achieve these beneficial effects appears from the literature to be a matter of opinion. Finally, the clay is kneaded and "wedged" (cut and thrown or hit) to remove air-bubbles. This is now often done in a pug-mill.

When plastic clay dries, it shrinks by approximately five per cent; some very plastic clays shrink by as much as eight per cent. Dry clay absorbs a considerable amount of water - an average clay requires about 35 parts to each 100 parts (by weight) to become plastic enough for modelling.

Shrinkage is greater in fine-grain clays because they hold more water: thus plasticity and shrinkage go together, for example in ballclay. Grog (fired and ground-up clay) is added to give "open" bodies, as it absorbs little water and is easily dried out, and this reduces shrinkage. Flint and feldspar are also used to achieve this.

During the firing process, the uncombined water is driven off by the time the temperature reaches 100°C; and at ca.350°C the chemically combined water begins to be driven off. By ca.500°C this is finished, and the clay is dehydrated and not usable again for any reshaping (it is, however, very friable). At 573°C quartz crystals, of which there is an appreciable amount in clay, either naturally or through adding flint, undergo what is called a change from alpha to beta quartz. This involves a rearranging of the quartz crystals and a slight (approximately two per cent) increase in volume. (The process is reversed when cooling through this temperature, and heating and cooling at this point have to be done carefully, particularly with large objects or if the kiln does not fire very evenly, to avoid cracking (called "dunting") when it occurs during cooling). By ca.900°C the oxidization of organic material, such as carbon, and inorganic carbonates or sulphates, is complete.

Vitrification is the hardening, tightening, and finally the glassification of the clay. The temperature at which this happens varies widely depending on the clay. Common red clay fires to hardness and density ca.1,000°C and melts ca.1,250°C. According to Rhodes (1957: 20, 1973 ed) ballclays generally tighten to a dense structure ca.1,300°C, but because ballclays cover a variety of types their characteristics vary, and A.R. Scott (1929:61-3) discusses and shows in graphs porosity at various temperatures for four types of clay - South Devon black, South Devon blue, Dorset blue, and North Devon blue. Vitrification of all save the South Devon black commences at 940°C, at which temperature the Dorset blue is slightly more porous than the North Devon blue and the South Devon blue slightly more porous than the Dorset blue. The porosity of all three however, are between 33% and 39%. The three vary somewhat in porosity as temperature is increased, the South Devon blue clearly retaining its porosity better than the others. By the time 1,100°C is reached the Dorset and North Devon blues have lost virtually all their porosity, and though South Devon blue at this point still has some five per cent porosity, by the time 1,125°C is reached all three have a porosity of under half of one per cent. With South Devon black, however, the situation is quite different: vitrification does not begin until after 980°C is reached, at which temperature its porosity is still 43%, and it then proceeds rather less quickly than in the case of the three other clays, total lack of porosity not occurring until 1,240°C has been reached. (According to Cardew (1969: 306), ballclays vitrify in the range 1,100°C-1,200°C, some (p.291) vitrifying completely as low as 1,100°C apparently because of the presence of very fine mica crystals.)

Firing beyond the temperatures noted by A.R. Scott leads eventually to softening - this occurs at temperatures ranging from 1,670°C to beyond 1,770°C depending on the type of ballclay (A.R. Scott 1929: 64). Kaolin, on the other hand, can still be open and porous at 1,250°C, and does not melt until temperatures beyond 1,800°C have been reached (Rhodes 1957: 20, 1973 ed), which is one reason why even porcelain is not made from pure kaolin, but has a "flux" (see below) added to lower the maturing temperature. According to Cardew (1969: 306), the maturing range for hard porcelain is 1,320-1,450°C. This process involves a shrinkage which can be as high as 10% depending on the degree of vitrification.

Ballclays have a shrinkage of up to 20% when fired to maturity, hence are rarely used by themselves in pottery. English ballclay is highly plastic (partly because it contains a large amount of carbonaceous material, the cause of its dark colour), and is free of iron. Kaolin's chief drawback is its high firing-temperature, and to make it workable in pottery various additions are made. Feldspar is added as a "flux", a substance which lowers the vitrification point, in this case to ca.1,300°C; flint is added to give hardness and resist warping (it also helps to "fit the glaze" - to match the firing characteristics of glaze and body); and ballclay is added to increase plasticity (though it decreases the whiteness of the kaolin).

Chinese kaolin was unusually plastic and needed no addition of ballclay, hence the translucent white achieved in Chinese porcelain. A typical modern porcelain composition would be five parts kaolin, three parts feldspar, two parts flint, and one part ballclay. (Howe (1914: 140-1) lists a large number of ceramic bodies using kaolin, and gives the proportions of kaolin and other substances.)

Clays to be pressed in a mould do not need to be as plastic as clays for wheel-thrown or hand-shaped vessels: they have to be strong enough to retain their shape.

Rhodes (1957: 65, 1973 ed) states lime is extremely difficult to extract from clay, and that its presence is disastrous because when fired it changes from calcium carbonate to calcium oxide which hydrates - takes on water - and swells (cf Randall 1877: 18; Holland 1958: 5, 82-3; G. Lewis 1970: 2nd page). Duhamel du Monceau writing two centuries earlier (1771: 13), also noted a contaminant which had to be prevented in clay to be used for pipemaking was lime from the storehouse walls.

However, the presence of calcium is certainly tolerable, for there is quite a range of calcareous earthenware; and a calcareous body is advantageous in the making of tin-glaze ware as the glaze on this body is less subject to crazing (the formation of a network of cracks caused by the shrinkage of the glaze to a greater degree than that of the body) (Charleston *in litt.* 25 March 1968, quoting *Encyclopaedia of the Ceramic Industries* by Alfred B. Searle). Fleming (1923: 47, 83), while not a reliable source, also talks of calcareous clays for making tin-glazed earthenware.[33] Calcareous East Anglian marls were used by London tin-glaze potters because, according to Edwards (Weatherill and Edwards 1972: 173), its leanness and high lime content corrected the excessive shrinkage in firing of the other clays used; in the C17 Dutch delft-potters were using Norfolk clay to mix others (quoted in Ray 1968: 85; see below) - presumably this was the same clay and used for the same purpose. Writing in 1772, Josiah Wedgwood mentioned a white ceramic body - part of his experiments in whitening creamware which eventually produced pearlware - which had apparently been successfully fired and contained "a small quantity of limestone which is intermix'd with all this Chert [the ground flint added to white stoneware and creamware bodies]" (quoted in I. Noël Hume 1969c: 390, cf p.391), indicating the deliberate adding of limestone to the clay. (G. Smith, in his C18 compendium of chemical and similar tests and recipes entitled *The Laboratory: or School of Arts:...*, claims (1750 ed: 98) that "*to prepare the Clay for fine Delft Ware*" one mixed "one part of calcin'd flint; one part of chalk, and one part of capital or the cream of clay": a combination in these proportions for such a body seems improbable, but the calcined flint would have given a harder body and the chalk would have supplied the lime.)

The deliberate addition of limestone to a clay body is in fact a very old technique: in the Iron Age II pottery of Stratum A at Tell Beit Mirsim (probably the Biblical Debir, Kiriath-sopher), ca.900-600 B.C. in southern Palestine it was a common additive as tempering, being a poor substitute for sand, flint, or quartz. Apparently it was used because proper tempering was unavailable: the potters of the time were aware of one of the drawbacks of using limestone, which is the drawback indicated above, that pottery using limestone tempering required very careful firing to a low temperature as calcium carbonate begins to decompose and generate gas somewhere above 600°C. If the clay is a true marl, however, the tiny lime particles would be so well diffused through the clay naturally that they would cause little trouble in a low-fired ware (Kelso and Thorley 1943: 94-5, 111-2). It is of course a characteristic quality of tin-glazed earthenwares that they are a soft-bodied ware, no doubt reflecting the necessary low firing.

Howe (1914: 140-1) lists several ceramic bodies using chalk - Sèvres porcelain used 4%, French siliceous faience used 24%, and a French tile body used 25%, while Vienna porcelain used 4% gypsum. (Whether it is coincidence or not that the use of chalk is confined to French pastes is not stated. Lesur (1957-60: 1328) also notes that chalk is an impurity in clay and that it causes bursts, but at the same time he indicates that in the south of France clays with up to 25% chalk are used, apparently because it is present in very fine granules only. He instances other areas where a similar presence of chalk occurs in clays used to make tiles.) Dienemann and Burre

(1928: 34) say that low calcium content is harmless; and Cardew (1969: 51-2 and chapt 8 *passim*) notes the usefulness of lime, chalk, and calcium carbonate in bodies and glazes, but he also notes (p.63) that bloating during firing can be caused by the body containing too much calcium carbonate or magnesium carbonate. A.R. Scott (1929: 51, 1-2) notes that lime has a bleaching effect on iron-bearing clays, hence its presence reduces the off-white or pinkish colours of fired ballclays containing iron; according to Kelso and Thorley, however (1943: 95), this is only the case with marl clays, where as noted above the lime comprises tiny particles well diffused through the clay naturally, and the artificial addition of lime would not produce this effect.

It is quite clear, therefore, that calcareous clays and limestone tempering are used without disastrous results, but there does seem to be confusion on the matter, for one source (H. Powell 1968: 19) says that lime is the principal flux in fusible clays - clays which vitrify at relatively low temperatures, lower than those at which vitrifiable clays vitrify - while another source (Dodd 1964: 166 s.v. Lime Refractory and Lime Blowing) says that while lime is indeed the best fluxing agent its instability because of hydration has largely prevented its use despite extensive research. (The above sections have been based primarily on A.R. Scott 1929; Rhodes 1957, 1973 ed; and Holdridge 1956; together with material from Searle and Grimshaw 1924, 1959 ed; *Enc. Brit.* 1960 ed: vol 5, 553-4; Rada 1960, 1964 ed; Drake 1966; and H. Powell 1968 in addition to specific references given in the text.)

Virtually no study has been made of the clays used in pipemaking; however, Duhamel du Monceau (1771: 7-12) records the results of analyses done on French, Belgian, and English clays by a M Rigault, *Physicien de la Marine* (Physicist with the Admiralty), and these are given below in tabular form:

	Andenne	Hautrache	English	Desvres
Natural colour	grey	brown	very white	brown
Reaction to acids	nil	nil	nil	nil
Weight of 1 cubic pied	150/4/6	143/4/3	135/11/0	144/3/6
Other data	15 po^3 powdered gives vol. of 33 *po*^{3}; absorbs 1 *liv* 3-1/2 *on* water; gives 44 *gr* sand	17 po^3 powdered gives vol. of 42 *po*^{3}; absorbs 15 *on* water; gives 81 *gr* sand	18-1/2 po^3 powdered gives vol. of 45 *po*^{3}; absorbs 1 *liv* 5 *on* water; gives 76 *gr* sand	16 po^3 powdered gives vol. of 41 *po*^{3}; absorbs 15 *on* water; gives 68 *gr* sand
	extremely pliant and ductile	rather less pliant than Andenne	much less pliant than Andenne and Hautrache	less pliant and compact than Andenne but more so than Hautrache

Mixes perfectly with water and remains in suspension for a long time because of fineness	precipitates faster than Andenne	precipitates slower than Andenne	
fires slightly red	fires a little whiter; some iron pyrites with consequent tendency to have ochre stain (and to wear moulds)	keeps white on firing	pinkish tinge from iron oxide (minimized by firing in reducing atmosphere)
small amount of shrinkage	has a little more shrinkage than Andenne	very large shrinkage	little shrinkage
few breakages while being worked as moulding solidifies it; very smooth surface which makes varnishing appear like vitrification		liable to break as takes less solidification in moulding; becomes very hard on firing; extremely rough surface despite whiteness and polish given	very easy to work

(Under 'weight of 1 cubic *pied*' the three sets of figures represent *livres*, *onces*, and *gros*; *po*^{3} signifies cubic *pouces*, *liv* is for *livres*, on for *onces*, and *gr* for *grains*. The source of the English clay was unknown, it having been obtained from an English ship captured during the Seven Years' War. Hautrage is spelt by Duhamel du Monceau Autrache, Desvres as Devres.)

As Andenne clay was esteemed the best for pipemaking (and the best from there was reserved for pipemakers, faience-makers having to take the next best) it appears that the most desirable characteristics were denseness, compactness, pliability, lack of shrinkage in firing, and freedom from impurities. Further, its ease of working meant faster production and better workers' pay. English clay proved to be distinctly poorer compared to the others; its only advantage is that it kept very white, but this was more than offset by poor finish and high shrinkage. This certainly agrees with this writer's observations on C18 English and Dutch pipes noted earlier in this chapter, and also with comparisons made between the Churchwardens made by Goedewaagen and Van der Want, the only two Dutch firms still manufacturing clay pipes, and those made by Pollock of Manchester, the only British firm still making clay pipes. The Dutch products have beautifully straight stems and an excellent finish, while Pollock's are definitely inferior in these aspects. (The reason why the negative reactions to acid are noted is because a certain authority of the time maintained that these clays were marls.)

In recent experiments Oak-Rhind has sectioned a number of C17 and C18 Dutch and English bowls, and notes that the former are very much softer than are the latter, only 2 minutes being required to cut a Dutch bowl as compared to 15 minutes for an English bowl. As there is no reason to suppose the Dutch fired their pipes at a significantly lower temperature than did the English - at present at any rate the Dutch fired to ca.25-60°C _higher_ than temperatures recorded this century for the English industry (see Sections II and VII above) - this relative softness must be a property of the clay. Oak-Rhind also notes that the clay used by the Dutch absorbs tobacco tar far more than the clay used for post-1650 English pipes (Oswald _in litt._ 10 October 1973).

(Brongers (1964b: 37) notes that Andenne clay gave a milky white product - which agrees with the rather creamy colour generally observed on Dutch pipes - that German (presumably Westerwald) clay gave a chalk-white colour, and that English clay gave a snow-white colour, which last agrees with Rigault's observation. Brongers also observes that the German clay was more brittle than Andenne clay, but he is surely wrong when he says English clay "is well-nigh the best of all" and is still used in the Dutch pipemaking industry.)

Andenne clay was shipped to north France via The Netherlands - an appreciably greater distance than sending it by land - in order to avoid paying road tax. The clay cost 3 _livres_ 10 _sols_ per _quintal_. Clay from Hautrage cost approximately 2 _livres_ a _quintal_, almost half the cost of Andenne clay. (Hautrage, like Andenne, is in modern Belgium, but much nearer the north French pipemaking centres than Andenne, and its clay may have been supplied by road - the Duhamel du Monceau text rather implies this.)

The best French clay according to Duhamel du Monceau (1771: 5) came from the Bray area NE of Rouen, but no details of its characteristics are given. Clay was mined in the Neufchâtel-en-Bray area, at Forges-les-Eaux ca.10 miles SE of Neufchâtel, at le Fossé immediately to the east (Duhamel du Monceau's le Fossay), at la Bellière ca.2 miles SE on the main road from Forges-les-Eaux to Gournay-en-Bray, and at Gournay-en-Bray itself, ca.12 miles SE of Forges-les-Eaux.

The English clay mentioned by Duhamel du Monceau undoubtedly came from southern or SW England - the lack of knowledge as to its source was possibly because it was apparently forbidden at this time to export English pipeclay (Duhamel du Monceau 1771: 10; cf Pettersen and Alsvik 1944: 37; see also below). By the later C19, as noted in Section VII above, South Devon was the area which supplied the pipemaking trade with clay, but there were many other sources of pipeclay from Barnstaple in North Devon (H.E. Smith 1860: 213; Jewitt 1878: I, 120; Strong 1891: 134; T.M. Hall 1890: 321-2; Charbonnier 1906: 258; Holland 1958: 25, 100) round the coast to Purbeck and above all Poole in Dorset, which appears to have been the major supplier of pipeclay until the earlier C19, to the Isle of Wight and to Thanet, as well as small and generally inferior deposits all over the country (Plot 1686: 121; Houghton 1693/4: 205; Atkinson 1968: 11, cf Candlin 1968, Salzman 1968, and Atkinson 1969a; Oswald 1960a: 42-3; Towner 1963: 12; Douch 1971: 145; Weatherill and Edwards 1972: 161-3) - though the deposit at Chitterne, Wiltshire, was used by the Gauntlett family of Amesbury for their famous pipes described by Aubrey as "the best in England" (quoted in E.T. Stevens 1876: 102-3).

The Isle of Wight deposits appear to have been of some importance at least in the second half of the C17 and the earlier C18. A shipment of "three tons of tobaccoe pipeclay and twoe barr. cont. fourteen gross of tobacco pipes" is recorded from Cowes to Brighton on 3 August 1666 (Atkinson 1968: 11 - date erroneously given as 1665); Newcastle upon Tyne was importing Cowes pipeclay in the year ending Christmas 1683 (Willan 1938: 116, 1967 ed); Cowes was sending pipeclay to Plymouth, Southampton, London, and Kingston upon Hull - as well as "potters' clay" to Fowey, Plymouth, Dartmouth, and Portsmouth and pipes to Plymouth - in the year ending Christmas 1687 (Willan _op. cit._ 153-4); and on 19 July 1716 a local grocer, Robert Collington, advertised in the _Stamford Mercury_ advertised he had "a vessel lately come in with the Isle of Wight clay, and is willing to serve all the Pipe Makers round the country, and upon meeting with encouragment, will always keep a stock of clay ready for them", an advertisement which was followed 15 years later by another (_Stamford Mercury_ 5 August 1731) suggesting Collington had indeed received some encouragement, for he was now an alderman and had set up his own pipemaking business with "the best of workmen from London" and was "the importer of his own clays from the Isle of White" (sic) (P.K. Wells files). (It is no doubt symptomatic of the disorganized nature of local trade that in the same year ending Christmas 1687 that Cowes was exporting pipeclay widely - see above - it was also recorded _importing_ pipeclay from Poole (Willan _op. cit._ 154), and in the year ending Christmas 1691 was importing pipes from Poole (_ibid._ 156): this last was probably not an isolated incident, for Willan also notes (p.158) that towards the end of the C17 pipes from Lyme Regis were being sent to Cowes.)

Pipeclay was being shipped to London from places on the south coast by 1611 (Oswald and James 1955a: 187), but in 1618 Philip Foote, who obtained a 21-year monopoly to supply clay to all pipemakers in England and Wales in that year (see 3: I), obtained his clay solely from one John Overy, yeoman, of Hartley, Kent. He apparently obtained it in large amounts (R.H. Cooper _in litt._ 8 October 1969). There are two Hartleys in Kent, one 8 miles west of Rochester and the other 13 miles SW of Tonbridge.

Further to the west, in Surrey, deposits of white-firing clay, including occasional deposits of "pipe-clay" occur (Holling 1970: 19 and 21). White-firing wares are not known to have been produced in Kent or Sussex, where pottery of this type is ascribed to a Surrey origin (Mynard 1970: 40; cf anonymous short book notice in _PMA_ 4 (1970) 207), but as

Moorhouse notes (1971: 43) it can be suspected that the wide geographical range of "Surrey White Ware" came from various kilns where white-firing clays outcrop. Such wares, on archaeological evidence, were being produced in the C17 (Holling 1970; cf Matthews and Green 1970: 10) - they occur in a second-quarter-of-the-C17 context at Dover Castle (Mynard 1970: 31-46) - and the documentation of the Hartley deposit raises the possibility of the Kentish production of white-firing wares at this time.

The earliest reference to a pipemaker by name known to this writer is to a Peter Takell working in Barnstaple in 1599 (quoted in E. Watkins 1966: 217 from an exhibit label in Barnstaple Atheneum; the label was seen by this writer in 1969), and as Barnstaple had its own local ballclay it is certain that Takell was using this. (How effective Foote's monopoly of 1618 to supply clay to all pipemakers in England and Wales was in practice is uncertain - the following year Swithin Bonham of Poole, like Foote a founder-member in 1619 of the Westminster pipemakers' guild, was granted a seven-year lease by an absentee-landowner to exploit pipeclay at Poole; and in 1626 what appears to be a re-lease of this land by the same landowner to a William Cooper of Poole, is noted, this time for 21 years (see p.373 below). Further, as noted in 4: IV, two Scots were given a monopoly to export clay to England in 1619, and clay suitable for tobacco-pipes is mentioned.)

By the 1630s Poole appears to have been pre-eminent in the pipeclay trade, and it continued to monopolize this trade until at least the early C19, shipping as far as Glasgow, Liverpool, and Kingston upon Hull (Willan 1938: passim, 1967 ed; E.F.J. Mathews 1958: 33-5). As this material is certainly ballclay it is likely that all pipeclay was ballclay. Before the middle of the C19, however, the Devon ballclay deposits appear in pipemaking accounts and by the second half of the century they become the standard sources for pipemaking clay. Why this change appears to occur is not clear, for Poole continued to be a major centre for this shipment of ballclay at least until the end of the C19 - in 1840 nearly a third of the pottery made in England depended on Poole clay and the trade reached its peak in 1884 when 60,000 tons were shipped. However, A.H. Dunhill (1954: 91, 1961 ed) claims Devon clay was used for pipemaking at Broseley because it was superior to that from Dorset. By 1952 the annual production figure for Poole clay had dropped to 6,[illegible]00 tons (noted in K. Hudson 1965: 132, 1968 ed).

There is a fairly recent study of the Devon ballclay trade by Bulley (1955), but certain of his observations appear open to question. According to him (p.191, also in A.R. Scott 1929: 33), the Devon ballclay trade was established in North Devon in the late C17 and extended to South Devon and to the Poole area of Dorset in the years after 1700. This last is certainly wrong, for as shown above, Poole clay was being exploited for pipemaking at least by 1619. Though Bulley notes that ballclay was known as pipe- or tobacco pipe clay he made no mention of its use in pipemaking but refers only to its use in pottery, which he says starts only ca.1700. He notes that first recorded export of North Devon clay from Bideford was a small amount in 1691, most of it going to Bristol but some also going to Liverpool, Chester, Padstow, Gloucester, Bridgwater, and Swansea; by ca.1740, he says, the South Devon trade had overtaken it in importance

(1955: 191-2, 194-5; cf A.R. Scott 1929: 7, where he notes working of South Devon clays is said to have started ca.1740, though it might have been used before that for pipemaking at Knighton nr Plymouth). Regardless of the state of the South Devon ballclay trade, however, the North Devon trade in the mid-C18 still appears to have been important at any rate to Bristol users: in 1720 Bristol took 20 shipments of North Devon clay (Bulley 1955: 197); in the year ending Midsummer 1735 Bristol was receiving tobacco pipe clay from Bideford (Willan 1938: 174, 1967 ed); between Christmas 1736 and Christmas 1737 Bideford shipped coastwise over 900 tons of tobacco pipe clay "chiefly to Bristol, but also to Padstow, Bridgwater, Neath, Chester and Liverpool" (Willan op. cit. 168); and in 1755 it was recorded that "near Ware Giffard [the same deposits as recorded by A.R. Scott] there is plenty of fine pipe-makers clay, many ship loads of which are annually exported to Bristol, Liverpool, Chester and other places" (quoted in Keen 1969: 147). As late as 1797 it was noted that "fine pipe-maker's clay is found at Wear Gifford in abundance" (quoted in T.M. Hall 1890: 321).

According to Bulley (1955: 191-2), ballclay was first used for slips on Staffordshire and London wares, and then in the 1730s mixed with calcined flint to produce early creamware, the production of which brought prosperity to the South Devon clay industry. However, C.M. Watkins, dealing with C17 North Devon sgraffito and coarse earthenware exports to North America, notes (1960: 27) large quantities of pipeclay being shipped from Bideford to Ireland, Bristol, and Exeter in 1681, ten years before Bulley's first reference. Further, the sgraffito wares, datable to the period 1660-1690s on North American sites, have what Watkins calls a "kaolin" slip: kaolin has been a common misnomer for ballclay in North America for many years (Howe 1914: 3) and is constantly so used to describe white clay pipes in North American archaeological literature (cf I. Walker 1970b: 160; 1971a: 26; 1971d: 19) - Bivins, in his excellent work on the Moravian pottery of North Carolina, talks of a white clay used for slips and also sometimes for the pottery stub-stemmed pipes produced in the area (see Section VIII above) as "Kaolin, or pipe-clay" (Bivins 1972: 76-7). The ballclay deposits immediately adjacent to Bideford were certainly used to produce the white slip (Charbonnier 1906: passim), so these deposits were being used well before 1700. Indeed, elsewhere Watkins does talk of North Devon "pipe-clay" being used for the white slip on early English white saltglaze stoneware (C.M. Watkins 1968: 133-4; cf below). (Slip and applied decoration of pipeclay are known on German and other British pottery of the C17 and C18 (I. Noël Hume 1970c: 102-3, 118-9, 123, 135, 139; cf Oswald 1970b: 238) - unfortunately Noël Hume's reference (p.104) to North Devon sgraffitto slipware notes only a "white" slip.)

Bulley notes that South Devon clays went chiefly to London; Bristol was the chief buyer of North Devon clay. This seems inherently likely, but as the earliest Bristol pipemakers were in business as early as the first quarter of the C17 one may suspect that the North Devon clay trade with Bristol started from that date rather than the late C17 as Bulley suggests. Further, ballclay was a constituent of tin-glazed earthenware, and the Bristol tin-glaze industry had started before 1650, again suggesting an earlier clay trade than do Bulley's dates. Confirmation of this, however, must await study of the Bristol port-books, but certainly North Devon ballclay was being used in Bristol for stoneware as late as WW II (Holland 1958: 102).

Early references to "pipeclay" in the pipemaking industry unfortunately do not make it clear whether they mean ballclay or kaolin, and the term itself, of course, begs the question. Cardew (1969: 322) defines pipeclay as "(1) originally, ductible white clay suitable for making clay tobacco-pipes (2) now usually a clay suitable for making salt-glazed sewer-pipes". However, despite the assertion in Houghton (1693/4: 206) that the clay used to make "chinaware" was the same as that used to make pipes it is certain that ballclay was the material used. This is proved not only by Bulley's study of the Devon clay industry (Bulley 1955), where he notes that ballclay was called "pipe clay" or "tobacco pipe clay" in shipping records but by A.R. Scott's study of ballclays, where he clearly shows pipeclays to be certain beds of ballclay (A.R. Scott 1929: 6, 26, 32, 37-8, 45-7). (Honey is certainly wrong when he differentiates North and South Devon clays by referring (1952: 180 s.v. Devon) to the former as pipeclay and the latter as ballclay as though the two were different types of clay.)

By "chinaware" Houghton did not mean true, hard-paste, porcelain for this was not successfully manufactured in Europe until ca.1710; and it was not until 1768, after 23 years of experiment, that William Cooksworthy perfected at Plymouth the use of kaolin in the making of true porcelain in England (Honey 1928: 31-2, 1946 ed) and the properties of Cornish kaolin became recognized (for a description of Cookworthy's investigations see D.B. Barton 1966: 15-21; also Raistrick 1950: 204, 205-7, 1968 ed). It is extremely unlikely that Houghton meant soft-paste porcelain, for even this was not made in England before ca.1743, though it was being made in France to some extent in the second half of the C17 (Savage 1954: 193, 162, 1961 ed) and may have been the "*porcelaine commune*" referred to by Savary des Bruslons as being made of pipeclay in the entry on pipes in his *Dictionnaire universel*... (Savary des Bruslons 1759-65 ed: IV, col. 200), an entry probably basically early C18 in date (see p. 54 n. 16). The most obvious explanation would be that Houghton meant tin-glazed earthenware, an imitation of porcelain sometimes called Holland China (cf I. Noël Hume 1970c: 106), but Houghton notes his source as being "the ingenious Mr. Daught of Fulham": this was John Dwight (cf Jewitt 1878: I, 124) who died in 1703 and who took out a patent in 1672 for the manufacture of "Cologne ware" stoneware and "transparent earthenware commonly called porcellane or china" and whose Fulham pottery, founded in 1672 or 1673, remained in the family for over 190 years and still exists, though its business is now that of selling potters' material and equipment and the site is in the process of being redeveloped (Christophers and Haselgrove 1971; 1973; Christophers, Haselgrove, and Pearcey 1974). The "Cologne ware" stoneware was an imitation of Rhenish Bellarmines - Dwight also imitated Westerwald styles - and the "transparent earthenware...porcellane or china" was a high-quality slightly-translucent stoneware, an attempt to copy Chinese porcelain in which the firing technique was mastered but the crucial china-stone, or petunse, was lacking (Jewitt 1878: I, 118-26; Mankowitz and Haggar 1957: 93, 79; Bimson 1961; I. Noël Hume 1969c: 14; 1970c: 111-2, 114; Weatherill and Edwards 1972: 175 n.34 for the 1672 patent date and the 1672 or 1673 date for the founding of the pottery).

Fine white clay from Devon, which must have been ballclay, was apparently being used at Burslem in Staffordshire as early as 1710-15 as a slip to cover drab bodies made of local clays, the vessels then being salt glazed (I. Noël Hume 1963: 295, cf C.M. Watkins 1968: 133-4 and Weatherill 1971: 13-17). Simon Shaw, whose work "originated in the Reminiscences of many aged Persons" (1829: v, 1970 ed), indeed talks of John Astbury (B 1688, D 1743) using "Pipe Clay, from Biddeford, mixed with water" for the slip, and credits Astbury with being the first to use this method of producing a white stoneware apparently ca.1710 (1829: 126, 127, 1970 ed). This was a prototype of the English white saltglaze wares of the C18 which were certainly in production by 1720 (I. Noël Hume 1970c: 114; cf 1969c: 14 and 1970a: 249, 248 fig 1 for its occurence in an archaeological context with a terminal date of 1729)[34], for as the fine white clay became cheaper and more readily available it became possible to make vessels entirely from it (I. Noël Hume 1963: 295; Weatherill 1971: chapt 2). (As early as ca.1865, according to Shaw (1829: 109-10, 1970 ed), a local whitish clay from Shelton was being used together with fine sand from Baddeley Hedge to produce a primitive white stoneware; ca.1710 another, and whiter, proto-stoneware was being produced "by mixing common pipe clay with the fine grit or sand from Mole Cob" (S. Shaw op. cit. 127-8).)

The invention of true white-bodied stoneware by using Devon pipeclay in the years following his discovery of its usefulness as a slip and then ca.1720 his discovery of using calcined flint as an additive is also attributed to Astbury by Shaw, who had talked to Astbury's grand-daughter and great-grandson who had died in 1816 and 1823 respectively (S. Shaw ibid. 126, 128-30). However, contemporary evidence in support of this attribution is lacking (Mankowitz and Haggar 1957: 10; cf Mallet 1967: 203), and Shaw's story of how Astbury accidentally discovered the usefulness of flint - while travelling to London in 1720 he was forced to seek attention for his horse which was apparently going rapidly blind and an ostler at Dunstable blew pulverized flint into the horse's eyes and Astbury noticed the white colour of the powder and its clayey appearance when mixed with the moisture in the horse's eyes - sounds apocryphal: in fact, there is evidence that flint was being used in Staffordshire in the 1710s, and Dwight of Fulham was aware of the properties of flint in ceramics by the end of the C17 though he probably did not use it. In 1719 John Felton of Newcastle-under-Lyme and Thomas Hill of Sheldon formed a partnership to produce "flintware", and when the partnership was dissolved two years later it was noted in the settlement that there was clay, which had been brought through both Bridgnorth and Liverpool, and panned flint, with stampers and mortars for preparing the flint listed among the tools. The 1721 inventory of the goods of the deceased potter Samuel Edge of Burslem, who had been a stoneware potter in the period 1710-15, also noted three expensive mortars and pestles which were probably for preparing flint (Rowlands 1968: 51; Weatherill 1970: 5; 1971: 17, 23). All this would indicate that the use of flint to produce true stoneware was known in Staffordshire before the 1720 Astbury date, but it is significant that the Astbury story is set at Dunstable, in the Chilterns, where flint would have been common, and not in

Staffordshire, where flint does not occur. Certainly Josiah Wedgwood, though admittedly writing much later, in 1777, indicated white saltglazed stoneware had evolved from earlier saltglazed stonewares of local Staffordshire clay by the use of "White Pipe Clay [mixed] with...Flint Stones calcin'd & reduc'd by pounding into a fine powder" (quoted in I. Noël Hume 1970a: 250). Shaw too says (1829: 90, 1970 ed) that "In Staffordshire the English stone ware is manufactured of white pipe clay", and the reference above to the clay used for Fenton and Hill's "flintware" by 1721 coming via both Bridgnorth and Liverpool is particularly interesting, for it indicates clays from the South-West were being brought up the Severn (to Bridgnorth) by this date and thus could have been obtained this early by Broseley pipemakers (see below).

Again according to Shaw, who was a chemist, the difference between native Staffordshire clays and that from Bideford - later known as Chester clay because it was shipped to Chester for The Potteries - was that local clays all contained iron oxide, whereas those "from Dorset and Devon, used by the tobacco-pipe makers, have all their impurities extracted before they are vended to the purchasers", the lack of iron oxide making them "extremely white when fired" (S. Shaw 1829: 125, 1970 ed). This of course is correct, though the apparent implication that Bideford clay-merchants purified their clay in some manner prior to selling it is wrong, the clay being, as noted above, naturally free from iron impurities.

According to Fleming (1923: 83) clays for the tin-glazed earthenware produced at the Delftsfield pottery in Glasgow when it started production in 1748 came from Carrickfergus, Co. Antrim, Northern Ireland, which source was already supplying the Liverpool tin-glaze industry which had started at the beginning of the C18 (Garner 1961: 67-8, 68-9, 73). Carrickfergus clay was also used by 1747 to make tin-glazed earthenware at Dublin, and by 1767 was probably also used by tin-glaze makers in Bristol (Garner 1961: 68, 73; Raley 1963: 107; Charleston 1963: 226 and refs). In 1766 Delftsfield started producing white salt-glazed stoneware on a limited scale, but in 1770 creamware production started and this was to progressively take over from tin-glazed earthenware (Fleming 1923: 86, but cf shipping list on p.92 of items to North American colonies in 1771 including tin-glaze and stoneware but no creamware and similar lists on p.92 of 1791 and 1796 listing tin-glaze and creamware but no stoneware). During four months of 1768, 50 tons of Carrickfergus clay was shipped to Liverpool for tin-glaze production (Garner 1961: 73), and in 1771, when on the above evidence creamware and tin-glaze would have been the major products, Delftsfield imported 26 tons of "potter's clay" from Carrickfergus.

This clay is almost certainly ballclay: in 1811 the Carrickfergus clay deposits are described as

> ochre, brick-clay, potters clay, or light blue clay, greyish clay, and deep blue clay. The latter [sic] is found beneath the sub-marine peat bog, strata of brick clay and light blue clay are also found within the sea marl" (quoted from S. M'Skimin The History and Antiquities of the County of the Town of Carrickfergus (1811) by the Geological Survey of Northern Ireland, in litt. 10 September 1970).

Little of this clay now remains according to the Geological Survey, erosion last century having removed most of the deposits, and according to M'Skimin by his time (1811) the clays had "long ceased to be an article of export" - formerly, he noted, much had gone to England, and to a pottery at Rostrevor, Co. Down.

If the "pipe-clay" is the same as the "light blue clay", this could be similar to the blue Devon and Dorset ballclays, and if it indeed comes from within the "sea marl" then it might well have been calcareous and very suitable for tin-glaze earthenware, as already noted. (A Swedish account of 1767 describing Bristol tin-glaze production said the clay used came partly from near Bristol and partly from Ireland, the local clay being much too fat and needing to be mixed with the lean Irish clay before working. The Irish clay probably came from Carrickfergus (Charleston 1963: 226 citing A. Baeckström's *Rörstrand och dess tillverkningar 1726-1926* (1930) and M.S.D. Westropp's *Irish Pottery and Porcelain* (1935) 30-1); the Bristol pottery referred to is probably the Redcliff Pottery of Richard Frank (Ray 1968: 52 and n.22). The clay from the Bristol area came from "Dondery" and "Stacent" - the former is Dundry, now on the southern boundary of the city, the latter is unidentified. Dundry clay appears to have been used at one time by Dutch delfware potters (Hughes 1961a: 18, cf Ray 1968: 85; see below).

A "good vein of fine clay that will retain its whiteness after it is burnt (when others turn red) and therefore used for the making of tobacco-pipes" was being used near Leeds from shortly before 1714 (quoted in Towner 1963: 12 and n.1); and the Leeds Pottery, which was working in this area from before 1770 and producing white saltglaze stoneware and later creamware and pearlware, was using Poole clay - which certainly is ballclay - as well as the local white clay in 1796. At the same date the pottery was importing flint from Sussex and as calcined flint was used (as already noted) in the production of all three wares noted it seems clear - despite the assertion of the unreliable Fleming (1923: 86-7) that kaolin was essential to the production of creamware and that initially it was imported from the Carolinas and Virginia until Cooksworthy's discovery of Cornish kaolin and its use from 1768 - that ballclays were the basic constituent of English white stoneware, creamware, and pearlware (by 1796 the first-named was probably no longer being produced, and pearlware would be taking over in popularity from creamware) (Towner 1963: 15 and *passim*). Initially, the Cambrian Pottery at Swansea used North Devon clay for its creamware - this would probably have been in the 1760s and 1770s - though subsequently the firm used South Devon and Dorset clay (Nance 1942: 39, 23 n.1, 413; all these must be ballclays, though Nance seems to use ballclay and pipeclay to mean two different things, cf Honey above). At Pardoe's Nantgarw pipe and pottery works near Cardiff, which was in business 1833-1920, south Devon clay was used both for the pipes - the factory's major product - and the white-bodied earthenwares also produced (I.J. Williams 1932: 143), a clear indication that refined C19 wares, the descendents technologically of the C18 white stonewares, creamwares, and pearlwares, were being made of pipeclay.

Pocock, visiting Bristol in November 1750, went to see a recently-established factory known as "Lowdin's china-house" where

> They have two sorts of ware, one called stone china, which
> has a yellow cast, both in the ware and the glazing, that I

> suppose is made of pipe clay and calcined flint. The other they call old china; this is whiter, and I suppose this is made of calcined flint and the soapy rock [see below] at Lizard Point which 'tis known they use (quoted in Pountney 1920: 186-7; also incompletely in Latimer 1893: 286).

The "stone china" appears not to be stoneware, as might be supposed from the name, but the lead-glazed yellow and brown slipware imitating Staffordshire products (Pountney 1920: 189) which have more recently been discussed by K.J. Barton (1962: 164-8); but in any event the body belongs to the refined earthenware family including English white stoneware, creamwares, and pearlwares. The "old china" is a soft-paste porcelain, not the true porcelain, but the reference is interesting in indicating the use at this stage of soapstone as a key ingredient in the search for a pure porcelain body.

Among the French terms for creamware was terre de pipe and among the German Pippgut (Honey 1952: 148; Ernould-Gandouet 1969: 30-1) clearly implying the use of pipeclay in creamware manufacture - Honey also notes that ca.1748 or 1749 white terre de pipe was used to produce figures at Lunnéville and other Lorraine centres and that this did not have the calcined flint added to produce the harder wares and true creamwares (1952: 149 and entries cited; cf Brongniart 1854 ed: III, 12 s.v. Lunnéville and 14 s.v. Strasburg).

(The same Swedish reference referred to above also notes that Worcester porcelain was made of a clay brought from "Tingmouth", presumably Teignmouth near Newton Abbot. This might seem to suggest that Worcester was using ballclay, for the clay deposits in the Teignmouth-Newton Abbot area are certainly ballclay, but the reference goes on to say that the clay, and also the hill when it was dug, was called "Sopiwek" which suggests Cornish soapstone (steatite) was being referred to. This formed a vitreous body similar to that formed from Chinese kaolin and petunse but at a much lower temperature, and was used in porcelain-manufacture in Britain by 1750 and until ca.1800 when the bone-china body replaced it. Pocock, visiting Cornwall in October 1750, noted that he went to see the "Soapy Rock" near the Lizard. "There are white patches in it, which is mostly valued for making porcelaine,...now carrying on at Bristol", (quoted in Nance 1942: 473, cf Latimer 1893: 286). There are in fact extensive deposits of soapstone in Cornwall (Savage 1954: 196, 1961 ed); "Soapy Rock" and "Sopiwek" must be the deposits at Mullion and elsewhere on the Lizard exploited from 1748 (Nance 1935; 1942: 472-6; Douch 1970: 36). As the Lizard is in Cornwall and Teignmouth is in Devon either the Swedish visitor telescoped his travels in his diary or the soapstone was being shipped in Teignmouth vessels.)

The difference between ballclay and kaolin appears to have been something of a mystery to potters of this time, even to Wedgwood. According to Fleming (1923: 272-3), who in this instance is quoting Wedgwood's Commonplace Book and thus may be correct, in 1779-80 Wedgwood himself wrote that kaolin was supposed to contain little phlogiston - the hypothetical principle of fire regarded as a material substance at one time - and that James Watt (the inventor of the steam engine and formerly a potter) recommended that to find whether a clay was ballclay or kaolin a soft lump of the material should be put in a coal fire and given a blast with a bellows. If it was pipeclay (i.e. ballclay) it would turn black or bluish - become "highly phlogisticated" - while kaolin would come out of the fire perfectly white. In 1697/8 when attempts were being made to set up a pipemaking and pottery industry at Whitehaven in Cumberland and the question arose "If there by any particular Way of Tryal to distinguish what Clay is fit for what sort of Work", John Dwight of Fulham, who was consulted, indicated that "No certain knowledge of Cleys can be had without examining them in the fire" (quoted in Weatherill and Edwards 1972: 162, 164), presumably referring to the same sort of test. From this evidence one can guess that unsophisticated pipemakers in the C17 and C18 probably chose their clay on an entirely practical basis. (Parsons (1964: 247) asserts there was a partial use of kaolin in place of ballclay in the late C17 and early C18, but he cites no source for this contention and his evidence does not justify his conclusion.)

An interesting example of the difficulties of identifying the correct clay for pipemaking is noted by the C17 antiquarian Dr Plot in his 1677 *History of Oxfordshire* where he observes (quoted in Jewitt 1878: I, 121) that John Dwight made his imitations of Rhenish Ballarmine stoneware jugs "of a clay in appearance like to tobacco-pipe clay, which will not make tobacco-pipes, although the tobacco-pipe clay will make [Bellarmine] bottles" (cf 1673 reference to him using a "transparent white stone and a little fine white sand" quoted in Bimson 1959: 11). However Dwight, answering other queries posed in 1697/8 by those wishing to set up pipemaking and potting at Whitehaven (above), claimed

> The differences between stone and Earthen Ware are such as these stone Pots (not Holland but cologne Ware) are made of Tobacco Pipe Cley wth some fine sand intermixd, & are burnt very hard wth Wood fire, & burnt but once. the Earthen Gally or White Ware cannot be made of Tobacco pipe Cley, but of other sorts that will not endure a stronge fire, & are twice (but soft) burnt, & that with wood only, for the glazing of wich White, Tin & Lead calcind together are used (quoted in Weatherill and Edwards 1972: 164)

Here he says he *does* make Bellarmines (the "cologne Ware") from pipeclay, whereas Plot implied he did not, though pipeclay could be used. He is also saying tin-glazed earthenware (the "Holland Ware" and "Gally or White Ware") cannot be made from pipeclay; but in fact pipeclay, or ballclay, forms half the material used to make the tin-glaze body: Dwight himself continues that a red clay "which is very strong", a blue clay "w^{ch} is of good strength" and a white clay "which is y^{e} weakest" are mixed in a proportion of about three barrels of the first to five of the second to seven or eight of the last (Weatherill and Edwards *loc. cit.* and Edwards 1974: 19). The red clay was ordinary potting clay, the blue was presumably the East Anglian marl with high lime content noted above, and the white was Poole clay which was certainly a ballclay used by pipemakers (Weatherill and Edwards 1972: 173 and Edwards *loc. cit.*).

There appears to have been a deposit of light- or white-firing clay in the Coventry area used for slips and pottery from the C13 to ca.1700 though the source of the clay is unknown (Woodfield 1966: 78-9). What source or sources of pipeclay were used by Midlands pipemakers is uncertain, but in view of the major importation of Devon and Dorset ballclays by the Staffordshire pottery industry from the early C18 most pipemakers from that date presumably used this.

Whether the Broseley industry in Shropshire initially used local clay has been disputed. R. Thursfield (1863: 79) claimed that "the clay of which [Broseley] pipes are made is, and so far as tradition can testify, has always been" from Devon and Cornwall (possibly Dorset is meant by the latter, as Cornwall has no ballclay - Cornish pipemakers initially used local clays, such as those at St Agnes on the north coast and probably those from St Erth and Ludgyan between Hayle and Penzance in the far west; but by 1758 Poole clay had superceded local clays according to William Borlase, and Port Book entries for the later C17 and as early as 1668 note pipeclay being imported through Fowey, Truro, Falmouth, an Penryn (Douch 1971: 145; cf Willan 1938: 164-5, 1967 ed)). Local clay from Shirlett, Thursfield continued, made very inferior pipes and those pipes which he had seen of that clay were not, he felt, of any great age. T.H. Thursfield, however, averred (1907: 163-4) that "There is at Shirlett a white clay similar to that used in early days at Broseley" whose colour and texture "is easily distinguishable from the Devon or Cornwall [sic] clay from which Broseley Pipes have for some years been made". This last part rather implies the use of Devon clays at Broseley was relatively recent. Randall (1908: 440-1), who was of a family long associated with the local ceramic industry (Oswald and James 1955a: 187), talked of Devon and Dorset clays being used, and noted that neither local history nor tradition indicated local clay had ever been used in the Broseley pipe-industry, though he suggested it might have been for the earliest manufacture; however, his account appears to be an attempt to reconcile the two Thursfields' accounts rather than an indication of any new evidence. However, there was a local coarse white-firing clay at Broseley (Randall 1877: vi). A.H. Dunhill (1954: 91, 1961 ed) noted that latterly at Broseley Devon clay was used, it being superior to either Staffordshire clays or, interestingly, those from Dorset. Oswald and James (loc. cit.) feel it is likely local clay would have been used initially.

As noted above, Devon clay was not being brought to the Staffordshire pottery industry before the early C18, so it is unlikely the more modest trade of pipemaking would have imported it before that time. Oswald and James also observe that Newcastle-under-Lyme pipes are of a very similar texture to Broseley pipes, and as they note, Plot (1686: 121) recorded that Charles Riggs of Newcastle made "very good pipes of three sorts of Clay", two of which - a white clay and a blue clay which fired whiter than the white clay but shrank more - were found between Shelton and Hanley Green and the third - a whitish-yellow clay which was brittle but fired without undue shrinkage - from Grubbers Ash. Shaw (1829: 97, 1970 ed) also noted that "a fine sort [of clay] is found in Hanley, and Shelton, which for a long while served the various purposes of the Newcastle tobacco-pipe makers". Atkinson (in litt. 24 April and 20 May 1972) notes Broseley-made pipes can be distinguished from Broseley-style pipes by, among other factors, the clay used, and that until ca.1730 a clay from the nearby Severn Gorge was used by Broseley pipemakers; the appearance of his paper on the Broseley industry, at present delayed by the publishers, is eagerly awaited.

As noted in Section I above, pipemakers in north France and what is now southern Belgium mixed clays from various sources for various qualities of pipes: such mixing does not appear to have been the practice in the British pipemaking industry, but Plot (loc. cit.) notes that Charles Riggs of Newcastle-under-Lyme, apart from making "very good" pipes with the three types of local clay noted above, sometimes mixed the blue and whitish-yellow clays, the reason no doubt being that the characteristics noted of these two clays complimented each other; and a 1671 inventory of a deceased Spalding pipemaker, John Fox, included 20 tons of black and white clay (P.K. Wells 1972: 14), suggesting he used different clays. Plot also notes (1686: 122) other, apparently different, white or light-firing clays: one called "White-clay" was bluish and used for yellow-coloured wares, yellow being the lightest colour achieved, and apparently from this a white slip was also made. "Bottle-clay" was a bright whitish colour with dark yellow inclusions and was used when mixed with "red blending clay" to make pottery known as black wares. Plot's Oxfordshire and Staffordshire observations suggest pipeclay was not simply any white-firing clay, but there can be no doubt that the vast bulk of clay used by English pipemakers from earliest times has been, and still is, ballclay.

According to Fleming (1923: 41) the first china clay (that is, kaolin) used in English and Scottish potteries was from Virginia, and Wedgwood imported some of this clay until the Cornish deposits were discovered as noted above (cf Griffiths and Wedgwood 1970: 64-7). At present, British kaolin deposits are still economically important, and are associated with the granitic intrusions of the late Carboniferous in parts of Cornwall and Devon (FIG 120). The main outcrops are in the Land's End, Carnmenellis, St Austell, Bodmin Moor, and Dartmoor areas, although production is now centred in the kaolinized parts of the St Austell Granite.

British ballclays, as noted earlier, are obtained from three comparatively small areas, also in SW England - Petrockstow in North Devon, ca.15 miles south of Barnstaple; between Newton Abbot and Bovey Tracey in South Devon; and the Wareham-Poole area of Dorset. The South Devon clays, together with associated beds of sand and lignite, are in places nearly 1,000 ft thick (Adams 1961: 5-7).

From the foregoing, it can be seen that the term "ballclays" comprehends a wide variety of clays. A.R. Scott, in his detailed study of English ballclays, indicates the varying nature of different deposits and beds and the variety of purposes for which they are used, from the production of stoneware to blocks of whitening for doorsteps (A. Scott 1929: 22 and passim). Among these uses, as already noted, is the production of tobacco pipes, and analyses are available for two South Devon deposits of pipe or cutty clay (A.R. Scott 1929: 45-7, samples SA, SB, and SM). These are quoted below, together with the figures given earlier for a South Devon blue clay and a Wareham, Dorset, ball clay:

	sample SA	sample SB	sample SM	South Devon blue	Wareham
SiO_2	59.61	50.76	55.85	45.60	50.76
Al_2O_3	26.11	29.43	29.83	35.48	33.52
titanium and iron	2.42	2.82	2.42	1.96	2.25

Samples SA and SB are from the same bed, which gives an idea of the variation in composition even within the one deposit.

From these figures it appears that although there is a wide variation within what is called pipeclay, these clays are consistently higher in silica and lower in alumina than the general run of South Devon ballclays; and that clays from Poole, which as noted in an earlier section appears to have been the source for most pipe-making clays (cf numerous references to pipeclay there, A.R. Scott 1929: 37-8) from the beginning of the C17 until the early C19, are more similar to the South Devon pipe clays. As also noted, in an earlier section, the Glasgow pipemaking firm of McDougall's made blocks of whitening out of their poorer-quality clay. Analysis of a "household" clay - the type used for making these blocks (A.R. Scott 1929: 46-7 example SN, 32) - indicates over 72% of silica and 18% alumina, which suggests that "poorer-quality" clay to a pipemaker would be clay with a marked concentration of silica and a lack of alumina: this in turn suggests that though pipeclays seem to have more silica and less alumina than the average ballclay there are definite upper and lower limits to the amounts of these minerals. As already noted, Adams (1961: 5) says that stoneware clays are the darker-burning and more siliceous ballclays, and figures for a Staffordshire stoneware clay are given by H. Powell (1968: 26-7) as follows:

SiO_2	59.00
Al_2O_3	25.00
titanium and iron	3.05

These figures are almost identical to sample SA of South Devon pipe or cutty clay noted above and might imply that pipe and stoneware clays are virtually the same (cf below); but Scott gives two vastly different analyses for two clays both called stoneware clays (samples SR and DR, pp46-7 and 48-9 respectively), one from South Devon and the other from North Devon, which suggests the composition of clays suitable for stonewares can be extremely variable. Scott's figures are:

	sample SR (South Devon)	sample DR (North Devon)
SiO_2	77.56	49.17
Al_2O_3	13.85	33.37
titanium and iron	2.27	2.73

Attempts to confirm that the Andenne clay used for pipemaking was indeed a ballclay ran into a surprising amount of difficulty. Brongniart (1854 ed: III, 5-29) has analyses for a large number of clays throughout the world, and gives the following compositions for Andenne and "Devonshire" clay, both of which he describes as being used in the production of *faïence fine* (refined earthenwares of the English salt-glazed stoneware, creamware, pearlware, and general C19 fine earthenware family):

	Devon	Andenne
SiO_2	46.35	52.00
Al_2O_3	37.00	27.00
iron	0.00	2.00

As indicated above, figures for Devon ballclay vary considerably not only from deposit to deposit but within the same deposit, so presumably the figures represent a typical potting ballclay (presumably from South Devon). Presumably also, the Andenne figures represent an equally-typical clay there - the Musée Communal de la Céramique at Andenne in an exhibit on the local clay industry which describes the clay as being a *silicate double d'alumine*, indicates from 13% to 40% alumina; Borremans and Lassance (1956b: 7 and n.8) note up to 50% silicate content. Brongniart's Andenne figures fall within the range of Scott's South Devon pipeclay samples SA, SB, and SM (see above), being quite similar to sample SB. From this there would seem to be little doubt but that Andenne clays are ballclays. The 2% iron would agree with Duhamel du Monceau's observation that Andenne clay fired slightly red. The Curator of the Musée de la Vie Wallonne, Liège (information via the Institut Belge d'Information et de Documentation in Brussels, *in litt.* 22 April 1968), referred to Andenne clays as a "very pure plastic clay...pure alumina silicate free from other mineral salts": the pliancy indicated by him, and also noted by Duhamel du Monceau, is characteristic of ballclay, though the small shrinkage noted by Duhamel du Monceau is unusual because normally the more plastic the clay the more shrinkage there is. Javaux's reference (1935: 4 n.3) to the use of Andenne clay in Gouda and Delft delftware factories would normally indicate the clay to be a ballclay, though tin-glazed earthenwares can apparently be made with kaolin, as was done at Cologne between 1788 and 1792 (Honey 1952: 140 s.v. Cologne - faience, cf 540 s.v. Saint-Yrieix). The firm of Jean Delbar-Bex, a Belgian supplier of clays, however, states (*in litt.* 27 May 1968) that the clay of the Andenne area does not burn white "and must be put in the class of the fireclay"(!) - they know of no mines of ballclay but note three of kaolin elsewhere in Namur province. (As noted above, Duhamel du Monceau says Andenne clay fires slightly red, but this does not make it a fireclay.)

In fact, clay from a number of sources appear to have been used to produce Dutch delftware. One authority (Ray 1968: 85, citing Hudig's *Delfter Fayence* pp77ff) notes that in 1742 potters at Delft used a mixture of four different clays, the most important being a fat clay from Tournai (in western Belgium, near the French border) which was necessary to counteract the lean local clay also used. In the C17 Dutch potters had imported English clay from Norfolk (see above) and possibly Bristol, and in 1691 seven Delft potters claimed English clay to be superior to that of Tournai, but apparently this export trade had ceased at the turn of the century. G.B. Hughes (1961a: 18) makes similar remarks, possibly using the same source though none is cited, talking of English clays being exported to The Netherlands where delftware potters blended it with "two or three native clays" and mentioning the Bristol Dundry clay noted earlier and other West Country clays as being exported (cf remarks in 3: V on English clay being used in the C18 at Saint-Omer). These instances may indicate that Andenne clay did not become important in Dutch ceramic manufacture until the beginning of the C18, in which case Dutch pipemakers may not have used Andenne clay before that time either. (Hendrickx (1963: 156) says that initially Gouda pipemakers used a local white-firing clay already used by Gouda potters and tilemakers, but that it was not suitable for such fine work, causing pipestems to be thick and coarse. Better clay was imported from Rouen, Cologne, and later on from Andenne.)

That Dutch pipemakers in the mid-C17 were using clays from a wide variety or sources - though not, apparently, from Andenne - is evident from a notarized statement of 1644 (quoted in Douwes 1964: 365). In this, one Willem Hendricks stated that clays from "Syberch, Fretsen, and Suitberch" were being used together with French clay, "*Engelsche poelsaert, ende Engelsche Eylewitts aert*", Frederich clay from Münster in Germany, and clays from Hesse, also in Germany. Subsequently, Hendricks also mentions clay from Roosendaal in the southern Netherlands. This writer has so far been unable to identify "Suitberch", but "Syberch" and "Fretsen" are in all probability Siegburg south of Cologne and Frechen just west of Cologne, both famous stoneware-producing centres using local deposits of light-firing clay (cf I. Noël Hume 1970c: 276-85 and refs). *Engelsche poelsaert* and *Engelsche Eylewitts aert* undoubtedly refer to clays from Poole and the Isle of Wight, while the clay from Hesse is perhaps that from Cassel noted by Hendrickx (1963: 157, 158; see also 3: III). The Roosendaal reference is particularly interesting because it implies there was native Dutch pipeclay: Duhamel du Monceau (1771: 7) noted it was alleged Gouda pipemakers got high-quality clay from near Antwerp - Roosendaal is ca.25 miles north of Antwerp - though he doubted this. The Roosendaal deposits may indeed still exist, for in 1969 a pipemaker was still working at Schoten near Antwerp, in Belgium (Lefrancq *in litt.* 9 October 1969; see also 3: IV and V).

There is, however, considerable confusion as to whether or not the export from England of pipeclay was permitted, Oswald (1960a: 43) noting complaints about clay being exported to The Netherlands in 1663 and Duhamel du Monceau (1771: 10) indicating it was forbidden when he was writing. In fact, documentary references of the period are flatly contradictory. In 1627 and again in 1629 the Privy Council permitted the export of pipeclay from Poole, Hampshire, and Kent once the London clothworkers' company had been satisfied the clay was not fuller's earth - in the second reference export to Rotterdam was specifically mentioned (quoted in Mountford and Celoria 1968: 2 no 2, 3 no 4) - and on 26 April 1634 the *Delight* of Scarborough left Boston for Danzig with "15 loads Tobacco pipe earth" (Boston port books, reference in P.K. Wells files), an entry which possibly suggests early manufacture of clay pipes in Central Europe (cf 3: III). In 1650, however, the State Papers Domestic are recording the illegal export of fuller's earth and tobacco pipe clay to Rotterdam and noting instructions to Commissioners of Customs to increase penalties for this offence. In 1661 the same source notes a proposal to impose a tax of 2d a cwt of tobacco pipe clay exported, implying such trade was now legal, and the following year the London pipemakers' guild urged that export of pipeclay to The Netherlands be forbidden as Dutch pipes were being sent to the English American colonies. A 1664 petition from the same guild again asked for the export of pipeclay to be forbidden; in fact an act of parliament of 8 May 1661 had forbidden the export of pipeclay and the London pipemakers' guild charter of 20 April 1663 also included a clause forbidding its export, so one may conclude from the 1664 petition that these strictures were being avoided (see remarks in 3: I below). One Dutch writer notes that ca.1660-1700 stems of Dutch pipes became thicker because wars with England (the First, Second, and Third Dutch Wars - 1652-54, 1665-67, and 1672-74 respectively) stopped the import of superior English clay and forced Dutch pipemakers to make do with German and Belgian clay (Düco 1974: 1st page; cf Friederich 1964d: 5). In 1712 and

1747 there are references to English clay being used in pipemaking in Saint-Omer in northern France (Coolen 1970: 391); on the other hand, Pettersen and Alsvik (1944: 37) note the export of English pipeclay was forbidden in 1752 and Duhamel du Monceau (1771: 10) says that at the time he was writing the export of English pipeclay was forbidden.

(The export of fuller's earth, of similar appearance to pipeclay, certainly seems to have been forbidden, no doubt to protect the English cloth industry: the 1627 and 1629 references above imply its export was forbidden and several references in the SPD for 1639 and 1640 indicate this to be the case, even to the extent of petitioning for shipments to northern England to be sent under bond. The export of fuller's earth was still prohibited in 1694, for in that year a clay-merchant with pits near Aldeburgh in Suffolk was accused of sending fuller's earth to The Netherlands in the guise of potter's clay (Weatherill and Edwards 1972: 173); his defence was that it was indeed potter's clay he was exporting - he was also exporting to North America - which presumably indicates that at least potter's clay could legally be exported to The Netherlands at that time.)

By September 1969, when the writer visited Andenne, local clay was no longer being used for pipemaking, the clay used coming from Germany (probably from the Westerwald, though the pipemaker, M Léonard, was unable to confirm this). On the other hand, when the Van der Want pipe factory in Gouda was visited in April 1969, it was said there that the clay used came from the "Liège area". Liège is only ca.25 miles from Andenne and the cliffs along the Meuse for the entire distance comprise a continuous series of clay mines; though in their study of medieval ceramics from Andenne and other pottery centres on the Meuse between Namur and Liège, Borremans and Warginaire (1966: 85 fig 35) indicate the deposits of "terre plastique" restricted to bands parallel to but south of and away from the river at distances of from ca.1/2 mile to ca.7 miles, and all in the area between Huy and Namur, a distance of ca.17 miles.

Savary des Bruslons (1759-65 ed: IV, col. 200) notes that pipeclay was used in France to manufacture faience; and faience was being made in various centres in the pipemaking area of northern France, including Saint-Omer, from the earlier C18, and there local clay from St-Momelin and Nieurlet, three and nine miles to the north respectively, was certainly used at least initially (Lesur 1957-60: 922), though neither of these places are near the clay-mining areas of northern France indicated by Duhamel du Monceau as supplying clay to the pipemakers of the area. Under the heading Argiles maigres du Pas-de-Calais, Lesur (1957-60: 1328) gives the following figures:

SiO_2	81.3
Al_2O_3	12.7
iron oxide	1.1
chalk	0.3

Unfortunately it is not stated for what this clay is used - the figures are similar to Scott's example SO from South Devon (A.R. Scott 1929: 46, 47) with 80.84% silica and 10.19% alumina but labelled only "silicious clay". Scott's example SR (loc. cit.) is in the same range - 77.56% silica and 13.85% alumina - and is called a stoneware clay, but that stoneware clays vary very widely in composition is indicated by a North Devon clay (Scott's example DF, pp48, 49) with 49.17% silica and 33.37% alumina which is also called a stoneware clay (see above). Rouen had been making faience as early as the C16, and in the later C17 experimented with soft-paste porcelain (Honey 1952: 255 and entries cited). On Duhamel du Monceau's evidence the local clay used for pipemaking should have featured largely in these manufactures. Among Brongniart's list of French clays (1854 ed: III, 9-15) are several probably used for pipemaking. Three are noted from the Pays du Bray, mentioned above (Section I) as the region around Forges-les-Eaux which made pipes from local clay in Duhamel du Monceau's time. The three clays, all noted as being plastic, came from Lachapelle-aux-Pots, ca.8 miles ESE of Gournay-en-Bray; Doudeauville, ca.6 miles NNW of Gournay; and St-Samson ca.3 miles south of Forges-les-Eaux, which is ca.12 miles NW of Gournay.[35] All three clays are described as plastic: the first two were used to make coarse stoneware, the third to make *faïence fine et commune* (general refined earthenwares) and glass-foundry crucibles (cf J. and F. Cartier 1968). An analysis is given as follows (Brongniart 1854 ed: III, 16 no 105) for the St-Samson clay:

SiO_2	65.00
al_2O_3	24.00
iron oxide	trace

This represents an appreciably more silicious clay than British pipeclays.

Brongniart also mentions three clays which he specifically says are called pipeclays - examples from Montereau-faut-Yonne, Strasbourg, and St-Victor-des-Oules (pp13-15, nos 129, 153, and 162 respectively). Analyses are available for the first two; the third is noted as being used at St-Quentin-la-Poterie, where as noted in 3: V pipes were and are being made, though at present a red-firing clay is apparently being used. The first-named clay is noted as being used for "*faïence fine, dite terre de pipe, et porcelaine opaque de Criel*"; it was also used by the Montereau pipemaking firm of Gisclon and his successor Dutel which was destroyed by fire in December 1895 (Colas 1959: 234 and 1962: 31). The figures for the Montereau and Strasbourg clays are as follows:

	Montereau-faut-Yonne	Strasbourg
SiO_2	64.40	66.70
Al_2O_3	24.60	18.20
iron oxide	trace	1.60

Both these sets of figures, like the Forges-les-Eaux analysis above, represent clays with a much higher silica content than that for English ballclays used for pipemaking.

(Howe (1914) does not list Belgian sources of kaolin, but he does cover French (pp41-2, map) and German (pp53-67, map) and neither the Pas-de-Calais nor the Westerwald areas have or are near deposits of kaolin. The clays of Seigburg, Frechen, Aachen, and the Westerwald, which were being used to produce a very hard earthenware as early as the C10 and true stoneware in the late C14 (Klein 1955: 7-8) seem certainly to be ballclays. Indeed, in the area south of Cologne there has been a continuous potting tradition from Roman times (Tischer in J. Hurst (ed) 1970: 103), presumably using this same clay. The Raeren and Aachen clays (the former centre has been, since 1919, ca.3/4 mile inside the Belgian border ca.7 miles SSE of Aachen) are briefly noted by Dienemann and Burre (1928: 118).

stoneware. The analyses are as follows:

	Lautersheim	Vallendar I	Vallendar II
SiO_2	49.00	66.70	65.27
Al_2O_3	33.09	24.00	24.19
iron oxide	2.10	1.20	1.00

The Lautersheim clay is very close in composition to the Wareham, Dorest, ballclay noted earlier (50.76% SiO_2, 33.52% Al_2O_3) but the two sets of Vallendar figures are, like the Höhr and French figures noted above, for a markedly more silicious clay than any of the British pipeclays. Lautersheim is ca.12-1/2 miles west of Worms, some 50 miles south of the Westerwald.

On the other hand, the clay deposits on Bornholm used during the second half of the C18 to make pipes and pottery (see 3: III, Denmark) may have been the kaolin deposits described by Howe (1914: 75-7), though the only clay described by Brongniart (1854 ed: III, 5, 16) from Bornholm was a silicious clay - 72.60% SiO_2, 19.50% Al_2O_3, 1.00% iron - used for making the saggars for Copenhagen porcelain.

The clay for the saggars used in firing pipes in fireclay, and refractory clays of this type have probably always been used. Refractories is the name given to inorganic materials with the ability to retain their physical shapes and chemical identities when subjected to high temperatures (Adams 1961: 18). As the saggars have to withstand continued firing, and often take the direct force of the flames, they have to be made of a material which will not be affected by the temperature to which the pipes will be fired, and preferably of a clay which can tolerate temperatures appreciably greater than those normally attained. Fireclays (Adams 1961: 18-19) are sedimentary in origin, comprising essentially a fine-grained mineral of the kaolin group with a hydrous form of mica. Free quartz is normally present, sometimes in considerable amounts, and a number of other minerals are also present including iron which gives it its characteristic reddish colour when fired. However, mineral additions in any large quantity generally lessen the refractory quality of the clay. Rhodes (1957: 313, 1973 ed) gives the following analysis for fireclay:

SiO_2	58.10
Al_2O_3	23.10
Fe_2O_3 and FeO	2.41

Fireclays can be heated to temperatures above 1,600°C without melting (Adams 1961: 18); this temperature is some 400°C above the highest temperature used to fire clay pipes known to this writer (at Andenne, Belgium, where this may be as high as it is only because the pipes seem to be used for bubble-blowing and rifle-ranges) and between 600°C and 700°C higher than the normal temperatures to which modern Dutch and English pipes are fired.

Analyses are available (Timmins (ed) 1866: 137) for deposits of Stourbridge fireclay, the clay famous for making glass-foundry crucibles and noted above in Section VII. One such analysis (sample 1) for a fireclay burning "perfectly white" which made "excellent firebricks and crucibles" gave a composition as follows:

SiO_2	59.87
Al_2O_3	33.49

The Westerwald clays are treated in some detail by Dienemann and Burre (1928: 181-97) and an extensive bibliography, including references to the pottery industry of the area, is included (pp181-2). In the Lower Westerwald region around Höhr-Grenzhausen, which was - and still is - the pipemaking and stoneware-production centre, there are four deposits of pure plastic clay. The largest is in the Wirges area, about six miles NNE of Höhr-Grenzhausen; another is at Ransbach, not quite so far NNE, in which area they still make clay pipes (see 2: IV); the third is a little north of the first, between Mogendorf and Selters; and the fourth, which is the smallest, is in the Höhr-Grenzhausen area itself. Mogendorf is noted in 1789 as being the source of clay shipped down the Rhine to Cologne and there sold to Dutch pipemakers (see 3: III), though at that time it was said by the Dutch, perhaps disparagingly (cf 2: II), to be of poor quality, little used (by the Dutch), and easily done without by them.

There are also major deposits of white clay along the east bank of the Rhine in the ten miles between Erenbreitstein, opposite Coblenz, and Neuweid, downstream near Andernach. The most important deposits here are in the Vallendar and Bendorf area, along the roads running to Höhr-Grenzhausen which is only about four miles to the NE. A very good white clay is also found at Urbar, a mile south of Vallendar. The purest white clay is classified as pipeclay and is used in the production of earthenwares, stonewares, crucibles for glass-production, and clay pipes, and as a good binding clay in the production of refractory wares (p.191); elsewhere (p.195) the authors refer to pipe-production starting after the end of the Thirty Years' War in 1648.

Clay from the Lower Westerwald was known as Vallendar clay because formerly it was shipped from there down the Rhine; by the time Dienemann and Burre were writing in the late 1920s, however, the clay was being shipped mainly by railway from various locations in the area. At that time it was shipped both as lumps and in barrels and a considerable amount went to France, Belgium, and The Netherlands. At that time too the best clay deposits were still being mined in the method which had been standard before ca.1863, by digging simple shafts ca.5 ft in diameter through the overburden, lining it with wooden hoops and posts and straw to prevent collapse, and then widening out the bottom of the shaft in a bell-shaped pattern when the clay had been reached. The clay was then hauled out by bucket and winch. The reason for the persistence of this system was the large number of small independent landowners, which largely prevented wide-scale open-cast mining.

Dienemann and Burre (p.195 example 10) give an analysis for a Höhr *Steinzeugton* (stoneware clay) as follows:

SiO_2	70.12
Al_2O_3	21.43
iron	0.77

Brongniart also lists (1854 ed: III, 6) a number of Rhineland clays, for two of which, those from Lautersheim and Vallendar, he gives analyses (p.16). In the case of the latter, two slightly differing analyses are given. The Lautersheim clay, described as whitish and plastic, was used in the production of *faïence fine*; that from Vallendar was described as ochreous and plastic and was used to produce *faïence fine* and Rhenish

protoxide of iron	3.01

with smaller percentages of potash, lime, magnesia, and soda. The general run of Stourbridge clay analyses, however, and particularly the best clays (e.g. samples 3, 4, 5, 8) have ca.68-79% silica, ca.17-28% alumina - the silica and alumina proportions being roughly in inverse proportion to each other - and ca.2-3% protoxide or peroxide of iron (cf Brongniart 1854 ed: III, 6, 16).

A.R. Scott (1929: 49, example DO) notes a "refractory clay" from the base of a series of Poole ballclays with the following composition:

SiO_2	62.38
Al_2O_3	23.48
titanium and iron	2.50

A clay from Ransbach in Westerwald, near Höhr-Grenzhausen, used to manufacture crucibles for glass manufacture and therefore probably in the general refractory class of clays from which Westerwald pipemakers' saggars would be made, had the following composition (Dienemann and Burre 1928: 195 example 11):

SiO_2	59.15
Al_2O_3	35.61
iron	1.04

(for figures for a stoneware clay from Höhr see the preceding example in Dienemann and Burre's table, noted above).

The sources of Bristol pipeclay have not been examined in this study, but it is perhaps worthwhile to bring together what evidence has been noted in passing. The very sparse evidence at present available suggests Bristol pipemakers used North Devon clay rather than clays from Poole or South Devon - for example, references to shipments of North Devon clay to Bristol in 1691, 1720, 1734-35, 1737, and 1755 (p.233 above) - and it is possibly significant that Willan in describing Poole's coasting trade (1938: 155-7, 1967 ed) does not note any clay destined for Bristol. Two maps based on Willan's survey of Poole trade (Cooksey MS 1: figs 1 and 2) suggest that in the later C17 Poole pipeclay went eastwards along the south coast and up the east coast as far as Newcastle upon Tyne but had little market westwards along the south coast and only one destination on the west coast, Watchet on the south side of the Bristol Channel, while in the earlier C18 little change is suggested to this pattern except that trade westwards along the south coast had increased and Chester and Liverpool had been added as west coast destinations. There is one reference (Willan 1938: 174, 1967 ed) to Bristol receiving clay from Exeter in the year ending Midsummer 1735, and this must be either Poole or South Devon clay being reshipped; however, Bulley (1955: 197) notes that only a little South Devon clay reached Bristol prior to 1770. The question as to where Bristol pipeclay came from, therefore, is far from settled; and supply patterns are at present totally unknown. Of course, with the Bristol tin-glazed earthenware industry commencing before 1650 there should be plenty of references to imported ballclay in the port-books; as noted above, Bristol tin-glaze makers were using Irish, presumably Carrickfergus, clay in 1767, this clay being already used by the Delftfield and Liverpool tin-glaze makers. However, the same 1767 source also noted that local Dundry and "Stacent" clay was mixed with the Irish clay. The possible use of Dundry clay by Dutch delftmakers in the C17 instanced by one source (pp 222-3) is another intriguing statement which could well be followed up; again, a study of the port-books would confirm or deny such a trade.

CHAPTER 3

HISTORY OF THE CLAY PIPE INDUSTRY

SECTION I:
GREAT BRITAIN

In Britain (and indeed elsewhere, as the references below show) a popular pastime last century and even into this century among those interested in clay pipes was to argue whether pipes had existed prior to the introduction of tobacco. Popular names, such as "Celtic", "Roman", "Danes'", "fairy", "elphin", "Mab", "Carles'", "Cluricans", and "Old Man's" pipes, and their recovery on Dark Age or Roman sites, were regarded in some circles as indications that clay pipes could belong to an earlier period than more orthodox historians were prepared to believe, and even Collingwood Bruce, an eminent C19 historian, seriously thought that pipes might be Roman (see Fairholt 1859: 152-9; also Hewitt 1859: 285 and Parsons 1964: 231).

Those who believed in smoking prior to the introduction of tobacco held that native narcotics such as coltsfoot, sneezwort, yarrow, and mouse-ear would have been used, as they were (D. Wilson 1851b: 679 and 1863: II, 504; *N&Q* 10 June 1854: 546, 9 September 1854: 211; Jewitt 1863: 74-5 repeated in 1878: I, 291; R. Thursfield 1863: 82; Apperson 1914: 43; Herment 1952: 116-8, 1965 ed; Berry 1963: 6; Macnab 1972: 260) into this century with potato-leaves, lettuce, and dried tea-leaves in some country districts or when tobacco was scarce or could not be afforded - a Suffolk man, born in 1890, recalls he used to roll some leaves in a bit of brown paper when he had no tobacco; when the leaves were really dry the "cigarette" would sometimes burst into flames (recorded in G.E. Evans 1975: 131) (coltsfoot was identified in a pipe-bowl found in Ireland (Ronayne 1903: 621) and Herment (1952: 117, 1965 ed) notes the use of such substitutes in France during the Occupation). They also quoted Dioscorides and Pliny who noted the inhalation through a tube of smoke from dried coltsfoot as a cure for a cough in Greece and Rome, and Herodotus who noted that the Scythians covered their heads with a rug and inhaled the smoke from hemp-seeds burning on red-hot stones. The Thracians too burnt the seeds of certain aromatic plants and inhaled the smoke.

(For some of the arguments and observations see Croker 1835; W.J.B. Smith 1854; Fitzgerald 1855: 308-10; Anonymous 1856b; Fairholt 1859: *passim*, esp. 152-66; Jewitt 1863; D. Wilson 1863: II, 503-6; Wilde 1863: 159-60; Quiquerez 1864; 1871: 86-7; Hewitt 1869; W.J.B. Smith 1878; Jewitt 1878: I, 291; E.A. Barber 1880a; 1880b; *Enc. Brit.* 9th ed 1875-89: XIX, 111; Cassidy 1895: 17; Lejeal 1897; Molin 1897; Godet 1898; McGuire 1899: 453, 457; various items in *N&Q* during the C19; C19 references noted in Hendrickx 1963: 151-2; T. McK. Hughes 1900; Reber 1900; Penn 1901: 17-23; Sheppard 1902: 6, 1912 ed; Ronayne 1903: 421; Pholien 1906: 138-9; Macartney 1906: 16; Quick 1906: 22-3; T.P. Cooper 1907: 106; T.H. Thursfield 1907: 160; Randall 1908: 441; Amador de los Ríos 1913: 279-83; A. Deane 1914: 4-5; Apperson 1914: 11-12; Reber 1914a; 1914b; H. Scott 1917: 147-8; Fleming 1923: 234-5; A.S. Brown 1923: 15-16; A. Dunhill 1924: 208; Keyes 1931: 19; Herment 1952: 1 and *passim*, 1965 ed and 1954: 1 and *passim*, 1963 ed; Terstraeten 1969: 1; Anonymous 1971a: Atkinson 1972a: 42 and *in litt.* 20 May 1972 with photograph of gargoyle at a church at Lacock, Wiltshire, smoking a pipe and alleged to date to before the conventional dates for the introduction of pipe-smoking to England; Garreau 1972: 38-40; Bastien 1973: 1st and 2nd chapts passim).[1]

The writer investigated only one of the pre-last-quarter-of-the-C16 stories "proving" smoking to be an earlier custom than conventionally held: Fleming's story of a carved fireplace lintel at Cawdor Castle in Scotland dated 1510 showing a fox (actually two foxes) smoking a pipe. The lintel, the story goes, is in a wing of the castle built at the time of the inscribed date. (The story occurs in D. Wilson 1851b: 681-2 - repeated in 1863: 505-6 - citing R. Carruthers's The Highland Note-Book, or Anecdotes and Sketches (1843) 154; N&Q 15 July 1854: 48-9 also gives the story, citing an issue of unknown date of the Inverness Courier.) According to the Earl of Cawdor (in litt. 7 November 1967) the lintel commemorates a wedding of 1510 but is built into part of the castle erected probably in the 1660s - no new construction is known to have been carried out at the castle in the early C16. The style of decoration on the lintel is not, contra the sources quoted, typical of the early C16 but is late Elizabethan or early Jacobean in English terms, and would date in Scotland some 60 or more years later - in other words, to about the 1660s. This would seem to effectively dispose of the possibility that an earlier lintel of 1510 had been incorporated in the new wing, though we are left to conjecture why this event should have been commemorated so much later - conceivably it could have been a modernized replacement of an earlier piece from elsewhere in the castle.

However, there is no more concise summing up of this problem than the remarks of one the Rev. Bryan Faussett, writing 200 years ago and before the craze for dating pipes to Saxons, Romans, or Celts had begun. He records that while digging a large prehistoric burial mound

> we met with nearly a whole tobacco-pipe, of that sort which were [sic] used when first tobacco was used in England.... This lay nearly at the bottom of the highest part of the tumulus. We may therefore, from these circumstances, conclude that this mound was opened not long after the reign of King James the First, or perhaps in it (Inventorium Sepulchrale:... from A.D. 1757 to A.D. 1773, ed J. Mayer (1856), quoted in Parsons 1964: 232).

Modern excavators of a Late Neolithic-Early Bronze Age barrow in Sussex similarly used the discovery of an early C18 pipe-fragment to prove that some of the disturbance obvious in the mound had been by curio-hunters of the latter period, and the excavation revealed a classic case of the sort of juxtaposition of artefacts which confused C19 antiquarians - a C19 pipe found in the topsoil with a Roman coin jammed firmly in the bowl (Beckensall 1967: 20-21).

It is extremely sad that even today books with presumably some designs at catching an intelligent audience should continue to cite uncritically "evidence" for medieval or earlier smoking and otherwise be so cavalier with facts; and it is unforgivable that as late as 1972 a scientific journal could have carried an article in which this same "evidence" is repeated. French writers in recent years have been particularly reprehensible in this regard: Herment's Traité de la pipe (1952), which has gone through several editions in France and in translation (as The Pipe, 1954) in Britain and the

United States - including an American paperback edition (1954, 1963 ed) - since its first appearance is one such example; Bastien's magnificently-illustrated and sumptuously-produced La Pipe published as recently as 1973 devotes two chapters to pre-1492 "evidence" for smoking in Europe and is otherwise tragically bereft of critical history; while Garreau's article "La Pipe en terre" in the Cahiers de la céramique, du verre, et des arts du feu in 1972 (Garreau 1972) similarly repeats the same sort of "evidence". The soundest works on the history of smoking, as noted earlier (p.31 above), are still Fairholt's Tobacco: Its History and Associations:...(1859) and Apperson's A Social History of Smoking (1914) for Britain, and for Europe Corti's A History of Smoking (1930, 1931 ed).

The earliest references to smoking in England have already been noted in 1: V - a reference (presumably to a cigar) in 1556 and another in 1570 to "little funnels made from a palm leaf or a reed" popular among sailors by that time for holding rolled and powdered leaves at one end. Although this latter might technically be held to be a form of cigarette (which form was known in pre-Columbian America) the fact that the tobacco was placed at one end indicates the tube was not a container per se but fulfilled the function of a pipe-stem, so that one is entitled to call these rolls primitive pipes. The earliest reference to pipes in their standard shape occurs in Harrison's Great Chronologie under the date 1573 when it was noted that "In these daies the taking-in of the smoke of the Indian herbe called 'Tobaco' by an instrument formed like a little ladell...is greatlie taken-vp and vsed in England...." (quoted in Dickson 1954: 132, see also Penn 1901: 30). As noted earlier (1: V), Thomas Hariot, one of the settlers of the first English colony in Virginia, in 1585-86, wrote in 1588 that the colonists adopted the local Indian custom of smoking with clay pipes and that they continued to do so after their return to England. Following this, and the rapid rise of smoking especially among courtiers, the manufacture of similar pipes in England must have begun. (The earliest use of the word "pipe" in English to mean a tobacco-pipe appears to be in a translation into English made by John Florio in 1580 of Cartier's Brief Recit of his first two voyages to Canada in 1534 and 1535-36, which had been published in Paris in 1545 (Mackenzie 1957: 69-70; cf Dickson 1954: 115 n.46). This reference is 14 years earlier than the earliest reference listed in the OED.)

If Hawkins initially introduced smoking, it must have been with the two-piece pipes he saw in Florida, and the description of pipes in 1573 as "little ladles" does not preclude their being two-piece pipes. Indeed, Aubrey, writing ca.1680 (quoted in A. Dunhill 1924: 225; cf W.E. Brown 1959: 240) said that smoking in the Malmesbury area, his part of north Wiltshire, first came into fashion with a Sir Walter Long and that silver pipes for the gentry and ones with a walnut shell for the bowl and a straw for the stem were the earliest ones. Aubrey, however, is held to be by no means an accurate historian and was writing a century later. It is possible that he was recording a recollection of the earliest days of smoking, before the Virginia Indian clay pipes had arrived, though it is more likely that his latter remark was a recording of a makeshift invention used by country folk before clay pipes became common in country districts.

Malmesbury however, is in the area of the C17 English tobacco industry, and pipes typologically very early are known from Wiltshire (W.E. Brown 1959: 240). Tobacco-growing was being attempted in England as early as 1571 according to MacInnes (1926: 75) so that it is conceivable that it had reached the Cotswold area before the clay pipe and that Aubrey's straw and walnut-shell pipes were a local adoption of the two-piece pipes seen by Hawkins in Florida. The first mention of tobacco-growing at Winchcombe in Gloucestershire is, according to MacInnes (1926: 83), in 1626 - A. Dunhill (1924: 206) states that tobacco was being grown there by 1586 but gives no source for this statement. One would have thought the heat conductivity of silver would have made such pipes extremely uncomfortable to smoke, but other references, and one actual specimen, suggest they were used. One of the earliest works in English on tobacco, Anthony Chute's Tobaco published in 1595, mentions earthen and silver pipes (Dickson 1954: 98; Mackenzie 1957: 90) as does a Dutchman, Emanuel van Metteran, writing in 1598 (Brongers 1964b: 17 and 19), and another Englishman, Sir William Vaughan in his Naturall and Artificiall Directions for Health of 1602 (Laufer 1924b: 35); and one silver example, datable to ca.1620-40, is known (Oswald 1959c: 207). There is also a reference to one in 1686 (Lindsay 1927: 69, 1964 ed). A story set in the time of James I (Fairholt 1859: 161 n.) noted that at that time it took 25 pipefuls to smoke an ounce of tobacco, which not only indicates the small size of the pipes but shows that to smoke a pipeful of tobacco cannot have taken very long, so that relatively little heat may have been conducted by metal pipes. Kingsley in Westward Ho! has Martin Frobisher and John Davis smoke long silver pipes, but this may have been inspired by Aubrey's account. That metal pipes were known this early is suggested by a source - of unknown accuracy - quoted by Fairholt (1859: 171 2nd n.) noting that Captain Miles Standish, who founded the colony of Massachusetts at Plymouth in 1610, brought with him in the Mayflower and used until he died a small iron pipe "about the size and shape of a common clay pipe." Fairholt does not specifically say the pipe still existed, though Penn (1901: 149) does. (For references to other metal pipes see Appendix I and Section VI below.)

An illustration appearing in 1590 (reproduced by A. Dunhill 1924: 210-11, fig 202) shows an Indian pipe from Virginia which is certainly extremely similar, save for its large size, to early English pipes (cf Oswald 1961: 59 types 1 and 2, 56-7); and the assertion that the English clay pipe industry developed following the bringing to England of Virginia Indian pipes by the returning colonists in 1586 seems very likely to be correct (cf Oswald 1959c: 201-2, 204 fig 3(14)-(17); 1960a: 42). The Duke of Württemberg does not refer to smoking in England in his carefully-kept record of his visit in 1592, but Hentzner in 1598 and Platter in 1599 record the phenomenon, and imply the use of one-piece clay pipes - Hentzner notes they were specifically made for smoking (Dickson 1954: 194-6), which indicates the existence of a London pipemaking industry by that date. The earliest pipemaker recorded so far, however, is one Peter Takel of Barnstaple who was making pipes by 1599, for in that year he made an agreement to supply two gross a week for 9d a gross (quoted in E. Watkins 1966: 217; she is citing a label accompanying pipes in a case in the Barnstaple Atheneum seen by this writer, but it has not been possible to trace the original source).

For the first half of the C17 the London area was the major centre for pipemaking: its trade and influence spread widely over England ca.1580-1630

(Atkinson and Oswald 1969: 201 and 203, 204) and it was here that a pipemakers' guild was set up in 1619. Unfortunately, references to this company are extremely confused, and most of its records appear to have been lost. Ditchfield (n.d.) describes many London companies, but makes no mention of the pipemakers'; Unwin (1904; 1908) makes only brief references to the company's existence. The following pages attempt to summarize what has been stated, however conflicting, and to include the evidence of the three C17 charters of the guild, in order to assist any future study. It was already in manuscript form when Woodman's account of the guilds appeared in Atkinson and Oswald 1969: 172-7. By a curious coincidence the research by Woodman and that by this writer each produced findings largely unnoted by the other, and as Woodman's study is readily available his material has not been repeated here. (Unwin (1904: 262, 1967 ed) lists the following documentary material on the company - 1619 SPD cix.160; 1620 SPD xcv.53, cxv.104, cvi.83; 1627 SPD lxxxix.12; Privy Council Records 19 August 1638; 1662 SPD lii.32, lx.9, lxi.12; 1663 SPD lxxii.70; 1664 xcvii.65.)

According to Jewitt (1863: 77, repeated in 1878: I, 295), T.H. Thursfield (1907: 160) quoting Jewitt, and - probably quoting them without acknowledgement - T.P. Cooper (1907: 104) and G.B. Hughes (1961b: 1633), the company enjoyed a monopoly of making pipes from 1601, although it was not regularly incorporated until 18 years later. This is based on a remark by Robert Cecil, Elizabeth's Secretary of State, recorded in Sir S. D'Ewe's The Journals of all the Parliaments during the Reign of Queen Elizabeth (1682) p.651 where such a monopoly is mentioned on 24 November 1601. The context was an uproar in the House of Commons about monopolies in general, and Cecil, urging "Zeal with discretion" in protesting monopolies, advises that the Queen be petitioned. He continues:

> One [Member] would have had us proceed [against monopolies] by Bill, and see if the Queen would have denied it: Another, that the Patent should be brought before us and cancelled; and this were bravely done. Others would have us proceed by way of a Petition, which Course doubtless is best; but for the first, and especially for the second, it is so ridiculous, that I think we should have as bad success as the Devil himself would have wished in so good a cause. Why, if idle courses had been followed, we should have gone forsooth to the Queen with a Petition to have repealed a Patent of Monopoly of Tobaco Pipes (which Mr Wingfields note had) and I know not what conceits: but I wish every man to rest satisfied till the Committees have brought in their resolutions according to your Commandments.

It is not clear why a petition against a pipe monopoly should be deplored when the use of a petition to the Queen on monopolies generally is extolled, but it seems quite clear that by 1601 there was a pipe monopoly, presumably on their production. (It is also unclear whether the reference to Mr Wingfield refers to the Member who had moved the action or to the holder of the monopoly.) Oswald (in litt. 14 August 1969) notes that Chalkley (in correspondence) asserted there was such a monopoly in 1601 but never gave any source - whether he was using D'Ewe or some other source is unknown. No other reference to a pipe monopoly this early appears to be known.

A letter (PRO ref. SP 14/98) dated 20 August 1618, almost 14 months before the first chapter was granted to the Westminster pipemakers' guild, refers to pipemaking monopolies in the following terms after mentioning various new taxes and laws: "and not so much as Archie the dizzard but that hath ingrossed the making of tobacco-pipes to him his deputies or assignes, which though yt seeme a small matter, yet they say yt concerns a number of poor men." Archie the dizzard appears to be a reference to Archibald Armstrong, the Court fool - dizzard means fool - but there is no record of Armstrong getting such a monopoly and the expression seems simply to mean that any Tom, Dick, or Harry could now get a document allowing him to make tobacco-pipes to the exclusion of others in the same trade. This would certainly imply that quite a number of monopolies were being granted at this time.

The first charter (PRO ref. C.66/2206 Patent Rolls 17 Jas. I, 5 Oct. No.6), dated 5 October 1619, strongly implies there had been no control of pipemaking prior to that date, for its raison d'etre is given as repairing the disrepute brought about by inexpert makers and the growing number of "loose and idle persons intruders into that trade", and to organize the trade and supress "unskillfull" makers (Robinson and Spence 1937: 200, confirmed in SPD). However, the very references to intruders and inexpert makers may reflect the monopolies given to Tom, Dick, and Harry in the preceeding years. It seems clear that the 1619 charter is the first attempt to organize the industry on some rational basis, which suggests that the earlier "monopolies" apparently dating to at least as early as 1601 were quite different in their application and terms of reference. (Robinson and Spence also say the Company's by-laws were framed on 6 October, but this has not been confirmed.)

As the present reconstituted company points out (Anonymous n.d. [27]) the original company was that of the Tobacco Pipe Makers of Westminster in the County of Middlesex (so 1619 charter), and was not, as is generally implied (e.g. Fairholt 1859: 166-7 quoting Stow; and following him T.G.H. Price 1900: 229; Pritchard 1923: 167; Oswald 1960a: 40), a London company. However, its rights extended throughout England and Wales: no person not a member of the company was to make pipes anywhere in these countries, and the company had the right to search shops, warehouses, and ships for unlawfully-imported pipes. These rights were typical of royal monopolies of the period - the Society of Soapmakers of Westminster, for example, founded in 1632, had similar privileges and was able to use them to break the Bristol soapmakers' guild (F.H. Rogers 1949: 156-7).

A.S. Brown (1923: 17 and 19) quotes a royal proclamation (he dates it 20 May 1620 but F.H. Rogers (1949: 165 n.2) says 27 May and this is confirmed by the SPD) which mentions the Westminster pipemakers' charter of the previous year - though its date is given as 6 October - and expresses displeasure that the monopoly given the company and intended to cover England and Wales was being broken. Those causing the royal displeasure are noted as being in London, Middlesex, and Surrey - they were fortifying their houses to resist attempts to stop their work, and the proclamation allowed two of the company's members, together with a law officer, to enter and search any suspected place. (There is a considerable confusion here in the literature. Robinson and Spence (1937: 201) refer to these powers and give

August as the month, and in fact appear to be referring to a second proclamation of 30 August (F.H. Rogers 1949: 165 n.3). Rogers (confirmed in the SPD) claims the search authority was contained in the second proclamation, but Brown (loc. cit.), quoting verbatim, notes it in the earlier one. Presumably it was in both - there appear to be no search rights specifically against non-members given in the 1619 charter, a flaw which the proclamations of 1620 were perhaps designed to rectify.)

As constituted, the company comprised a Master, 4 Wardens, and 12 Assistants; in addition 19 other names are listed as, in effect, charter members, which gives a total - including two Masters-elect - of 38, indicating that there were at least this number of pipemakers in the London area by 1619. (The electoral system is noted in 6: II(c)(2), when the structure of the Bristol pipemakers' guild is considered.)

(Fairholt (1859: 166) refers to the guild as having a Master, four Wardens, and "about twenty-four Assistants." This is repeated by Jewitt (1863: 78 and 1878: I, 295) and T.G.H. Price (1900: 229) - both probably quoting Fairholt without acknowledgement - and by Pritchard (1923: 167) - who does give Fairholt as his reference. Penn (1901: 149) states flatly there were 24 assistants. Harley (1963: 12) also states that there were that number and goes on to say, in quotation marks, that the company was, "'to be active in London, Bristol, Selby and Hull'". Where this statement is taken from is not mentioned, but it is not in the 1619 Charter, which is where Harley implies it is. This is but one of quite a number of inaccuracies in Harley's work.)

The company, however, had a brief existence, for a proclamation of 1621 abolished, amongst other evils, "the sole making of tobacco pipes" (Robinson and Spence 1937: 201-2).

The company appears to have been backed by, or perhaps more realistically was a pawn in the hands of, four courtiers who had been instrumental in obtaining the charter and had sunk £3,000 into the venture. What follows is not clear: Unwin (1908: 319, 1963 ed) talks of the Mayor and Recorder of London trying to "make friendly accord" among the four courtiers (SPD 24 June 1620), but it is not clear whether they had fallen out among themselves or with someone else. Unwin goes on to say that soon after the accession of Charles I these financiers found their interests threatened by another court favourite (probably Sir Thomas Willoughby referred to in 1627 (SPD Charles I p.493) as a rival claimant to the monopoly), and "ultimately the old charter was declared invalid and a new one granted on condition of the payment of £100 a year to the king." This suggests the first charter, elsewhere noted as being withdrawn in 1621, continued until after Charles I's accession in 1625, for the new charter mentioned appears to be the second, granted in 1634, as the payment noted above is that recorded in this charter. However, the 1627 SPD reference referred to is a petition from the three individuals - Thomas Warricke, Robert Maxwell, and Charles Maxwell - to whom the first charter was specifically granted asking that Willoughby not be assisted in his attempt to obtain the monopoly "originally granted by James I to the petitioners to their loss through the falsehood of the company of £3,000". This indicates the company had foundered by 1627 but that its backers were still hoping to salvage their investment.

The second charter (PRO ref. C.66/2645 Patent Rolls 10 Chas. I. (No.5)) is dated 4 December 1634. It was granted to a group of 24 individuals, eight of whom appear among the names in the 1619 charter. Warricke and Robert Maxwell again play a leading part, they and Richard Mathewes and Richard Cox asking for the charter on the grounds that some of the petitioners (whether this means of these four or of the other 20 listed later is not clear) had discovered a way of firing pipes from "Seacole or pittcole" instead of wood which had hitherto been used "to the consumption and greate decay thereof". It can thus be concluded that Warricke and the Maxwells had successfully fended off Willoughby and eventually regained their monopoly, which is not Unwin's interpretation. The Maxwells, in view of their Scottish name, may well have been favourites of James I, who was very prone to have such courtiers. James's favourites were very unpopular, and it may well have been that with his death there was considerable jockeying for position, such as Unwin implies, when Charles I succeeded. There is a slight suggestion that Mathewes and Cox may have been the pipemakers who had found out how to fire pipes with coal, Warricke and Robert Maxwell being their backers. By the early C17 there was a great scarcity of good timber because so much was being used in industry (see 2: II), and the promise to use no wood for firing was clearly designed to obtain royal favour (the 1619 charter specifically allowed pipemakers to use any fuel they wished). The company was to pay a yearly rent of £100 in two equal portions, a marked contrast to the 44s rent mentioned in the 1619 charter and no doubt indicative of the growing financial difficulties of the Crown during this period. (The electoral system was the same as that given in the first charter.)

(Oswald (1960a: 42 n.5) notes a Maxwell and one Kirk - again another Scottish name - as being granted a monopoly apparently sometime after 1619 to supply pipeclay in return for instructing pipemakers on how to fire pipes with coal - this appears to be a distorted version of the granting of the second charter. For a discussion of the clay monopoly see below, also 2: IX. Robinson and Spence (1937: 202) give the date of the second charter as 1633, but this is incorrect; to add further confusion they list (p.203) an entirely different set of officials to that given in the 1634 charter. The list they give is in fact one of early C19 makers - all but three of the 24 names can be identified either from Bloice's list of London pipemakers taken from C19 directories (in Atkinson and Oswald 1969: 216-25) or from Oswald's earlier list (1960a: 55-102) as working in the first 30 or so years of the century.

The pamphlet published by the present Company (Anonymous n.d.[27]) gives the date of the second charter as 10 December 1634 instead of 4 December, and also says that the title of the company was changed at that time to that of the Tobacco Pipe Makers of London and Westminster and England and Wales, but the charter in fact gives exactly the same title for the company as that given in the first charter. This source also notes that the charter was forfeited for non-payment of rent, the Civil Wars - commencing in 1642 - probably contributing to the dissolution of the Company. Oswald (1960a: 42) quotes a source indicating that the company was still active in 1643 (see below), but in fact the guild was ended by a proclamation of 31 March 1639 which cancelled the grants of incorporation to a motley group of manufacturers, including hatband, spectacle, gutstring, comb, and tobacco-pipe makers (Robinson and Spence 1937: 203, F.H. Rogers 1949: 165 n.4; Pearl 1961: 87).)

The third charter of the company (PRO ref. C.66/3040 Patent Rolls, 15 Chas. II. (No.7)) was dated 20 April 1663, and here the title of the company is changed to that of the Tobacco Pipe Makers of the Cities of London and Westminster and the Kingdom of England and Dominion of Wales. As with the second charter the guild promised to use only coal for firing pipes. There was to be a Master, 4 Wardens, and 15 or more Assistants. The annual rent was to be four nobles, obviously a largely nominal sum, the age of monopoly-granting to gain money for a hard-pressed Crown being by now over. This charter does not give a date for the termination of the preceding charter, but it does note that the rent had not been paid and that the Letters Patent "have been long since forfeited and voyd".

The charter prohibited the importation from overseas of any kind of tobacco-pipe and also, repeating an act of parliament of 8 May 1661, forbade the export of any pipeclay. The guild was to have rights of search, with the assistance of a constable, of shops, houses, cellars, warehouses, and ships for any imported pipes or exported clay.

(According to the present Company's pamphlet (Anonymous n.d.[27]) the company was re-incorporated on 29 April 1663 and recognized as a City Company without a grant of Livery on 2 July. Rogers (1949: 165 n.5) gives a date for incorporation of 21 September 1662 (see below). Further confusion is added by a reference (Robinson and Spence 1937: 204) to a petition in the Calendar of State Papers dated 7 March 1662 (confirmed in the SPD) from the "Masters, Wardens, etc., of the Company of Tobacco-Pipe Makers" requesting assistance against Dutch inroads in the colonial trade and "unskilful persons" making pipes for the home market, which suggests the guild was already in existence. This seems contradicted by a quotation from the same source dated 21 September 1662 (confirmed in the SPD) about two pipemakers, Thomas Lyddall and Mathew Warner, requesting incorporation "under such constitutions as formerly made" (presumably a reference to the previous charters), but the confusion must lie in the use of the old dating system when the year started on 25 March: in this case 7 March 1662 would be 1663 new style. The March petition is presumably a formal application for the charter granted the following month, though its terms suggest the officials had already been elected. (The reference to these officials does not appear to relate to officers of the previous companies, for the 1663 charter's Master, Wardens, and Assistants do not include any of the names mentioned in the 1619 and 1634 charters). Curiously, the two individuals, both pipemakers, who submitted the September petition do not appear in the 1663 charter's list of officials.

On 29 April 1664 (F.H. Rogers 1949: 165 n.6; confirmed in the SPD), the guild asked for a reconfirmation of its powers because so many people were flouting its authority (T.P. Cooper 1907: 104-5). As noted above, the present Company says the company was re-incorporated on 29 April 1663 - it seems likely there is a confusion between 20 April 1663 (the date on the charter) with 29 April 1664 (the date of this reconfirmation). Harley

(1963: 12) quotes John Aubrey to the effect that Charles II confirmed the guild's charter in 1675, but neither Harley nor Aubrey is a reliable source and the statement is probably erroneous.

According to T.P. Cooper (1907: 104) and Oswald (1960a: 43, 47), the company, at the same time as it received its new charter in 1663, petitioned parliament to forbid the export of pipeclay to The Netherlands as Dutch pipes damaged the market for their own pipes. This, these sources say, was granted in return for a promise to use only coal for firing pipes. In fact, these points were incorporated into the new charter - this may be the petition of 7 March 1662/3 referred to above but in any case there had also been the act of parliament of 8 May 1661 noted in the 1663 charter. (The whole problem of prohibitions on pipeclay exports is full of contradictions - see 2: IX).

According to T.P. Cooper (1907: 104-5) and Lipson (1931: 282, 1956 ed) the guild asked in 1664 (the SPD give the date as 16 December) for their trade to be included in the Statute of Apprentices or Artificers (sometimes miscalled the Statute of Labourers) whereby only those who had served a seven-year apprenticeship could become pipemakers - they noted their "threatened ruin because cooks, bakers, and ale-house keepers and others made pipes, but so unskilfully that they are brought into disesteem". As all three charters were equally specific about apprenticeship it seems likely that the guild was in fact trying to refute an argument that because its trade had not specifically been included in the 1563 Statute of Apprentices pipemaking was exempt from its provisions. (In the following century it was to be held that the Statute was non-retroactive - that is, trades not specifically mentioned in it were excluded from its provisions. This applied to the growing industries in the North and Midlands in particular, though apprenticeship was normally replaced by a seven-year indenture (Ashton 1955: 223-4, 1961 ed).) (It is possibly a misreading of this request that leads Hughes (1961b: 1663) to state that this Statute specifically included a reference to pipemakers when it was promulgated in 1563. Mackenzie (1957: 79) notes this error, but refers to a five-year apprenticeship. He also says that "years later" (i.e. subsequent to 1563) the London pipemakers appealed to the Statute to stop Bristol pipemakers cutting them out, but this writer has been unable to verify this statement and it is unclear on what grounds such an appeal could have been made. Bristol pipemakers certainly followed the customary seven-year apprenticeship (see 6: *passim*).

Few references to the guild in the C18 have been found, but T. Waller's *A General Description of all Trades*... of 1747 notes (p.167) that the company was 78th in precedence as a City company and that it had neither Hall nor Livery; another source of the same year (R. Campbell 1747: 337, 1969 ed) also notes the company was 78th in precedence.

Robinson and Spence (1937: 208) note the new by-laws of the "Worshipful Company of Tobacco Pipe Makers, of the Cities of London and Wesminster (and the Kingdom of England and the Dominion of Wales)" dated 23 January 1805 forbidding the employment of "unskilful and unfit persons, as women and young girls" as this resulted in poor products - no women were to be employed except the widows of men who had been in the trade for at least seven years. No member of the company was to "carry or cause to be carried, any Tobacco Pipes about the Street...hawking or offering to sale [sic] the same...." By the rules and ordnances approved by the Lord Chancellor and the Chief Justices of the King's Bench and the Common Pleas on 3 April 1821 (Robinson and Spence 1937: 208) admission was by "Patrimony (Birth), Apprenticeship for 7 years, working at the trade unmolested for 7 years, or by serving His Majesty in the Army or Navy". The charter gave the guild jurisdiction over all pipemakers in England and Wales, but the guild did not extend this right beyond 20 miles round London. Not so long before 1821 it destroyed defective moulds, and at that time officers could and did enter shops within the 20-mile radius warning any person who was not entitled to the freedom of the company and fining the master if such a person was not discharged. (This aspect of the Guild's function, and the losing battle carried into the 1850s by the Guild to try to assert its authority, is described by Woodman in Atkinson and Oswald (1969: 175-6).)

(G.B. Hughes (1961b: 1633) says that after the incorporation of the guild in 1619 its monopoly was confirmed by subsequent monarchs until 1821, when George IV failed to renew it "being influenced by the makers of the more sweetly smoking briar pipes, then newly introduced." Hughes is not a reliable source, and brier pipes were certainly not appearing until some 35 years after 1821. Pritchard (1923: 168) notes that according to one source (given only as "Marryat" but probably Joseph Marryat's History of Pottery and Porcelain... of 1857), the company petitioned Queen Anne for a charter of incorporation but this was not allowed. Presumably his reference is in error, for the guild was already incorporated and appears to have remained so until ca.1870. Perhaps the request was for livery.)

Between 1801 and 1833 there were 528 members admitted by patrimony or apprenticeship, though as there were only 316 members in 1833 there must have been a high attrition rate. Moreover, how many of these 316 were working pipemakers, and how many of these (if any) worked outside London, is not stated. Presumably these members included journeymen and not just masters. (The list of officers given in Robinson and Spence 1937: 202 is almost certainly that for 1821, and is presumably meant to be attached to the seventh paragraph on p.208. The list gives a Master, 4 Wardens, and 19 Assistants, which last number indicates that the guild had taken advantage of the 1663 clause allowing it to have more than 15 Assistants if it wished.)

Woodman (in Atkinson and Oswald 1969: 177) records that the last enrolment in the Chamberlain's books of an apprentice bound to a citizen and tobacco-pipe maker was in March 1852 and the last admission of a freeman of the Company to the freedom of the City was in January 1868. In 1869 the Company is omitted from the list of City companies listed in the City Corporation's official pocket-book, so presumably it died in 1868.

The present Company, under the title the Company of Tobacco Pipe Makers and Tobacco Blenders, was formed on 24 March 1954. On 5 March 1956 it was granted a coat of arms based on that of the old company, with allegedly their old motto Producat Terra. On 20 December 1960 Livery was granted (Anonymous n.d.[27]). The original coat of arms (Fairholt 1859: 167 and illus., quoting Strype's edition of Stow vol II p.247 and Allen's History of London; Pritchard 1923: 167-8, quoting C. Welch's Coat-Armour of the London

Livery Companies, 1914; Robinson and Spence 1937: 200, no source given; full depiction in an illustration of ca.1800 in Oswald 1970c: pl 206) differed markedly in detail from the modern one, which is depicted in full in Anonymous n.d.[27]. The original motto, according to all available sources, was "Let brotherly love continue," not Producat Terra.

According to Brongers (1964b: 35) one of the reasons James I granted the company its charter was to control pipe production, especially the production of the Ralegh pipes noted in 1: II(h). James had disgraced Ralegh in 1603 and had had him executed in 1618. Brongers goes on to say that James, finding himself unable to control pipe manufacture because those makers outside London ignored his commands, threatened to jail recalcitrant makers and that this added to the numbers who left for the Continent. While it seems reasonable that the Ralegh pipes may, initially at least, indeed represent Ralegh; and that James, who was both anti-smoking and anti-Ralegh would have been angry at any widespread appearance of these pipes, it seems on the basis of the evidence noted in 1: II(h) that these pipes are not of English origin (see also I. Walker 1972b).

It seems, therefore, that there is considerable uncertainty about the history of the Company, which reinforces the impression that it was never able to enforce its theoretical power - certainly not over all England and Wales as their charters implied. Indeed, as Oswald notes (1960a: 47), the existence of independent guilds at York and Bristol - the latter founded in 1652 - and a guild of grocers, apothecaries, and tobacco-pipe makers founded at Gateshead in 1675 (Parsons 1964: 241-2 and pl XIII) indicate that the Company was not recognized in these areas, and anything less like the guild at Gouda in The Netherlands with its dictatorial powers over every aspect of trade (Helbers and Goedewaagen 1942: passim) is difficult to imagine. Brongers's source for his statement about Ralegh pipes being the major target of James's wrath is not given, and this writer has not been able to find any confirmatory evidence. However, R.H. Cooper (in litt. 29 July 1968) notes that a few years before the outbreak of the Civil War in 1642 members of the London Company visited Southampton to search out any unlicenced pipemakers, so some efforts were made to enforce the monopoly beyond the London area. One signatory of the 1619 charter, Swithin Bonham, is described earlier the same year in a document allowing him to exploit Poole clay for tobacco-pipe manufacture as a gentleman of Poole (Cooksey MS 1), a major source of pipeclay in the C17 and C18 (see below; also 2: IX), so possibly the Guild had a more effective writ than has generally been supposed.

As Oswald notes (1960a: 47; 1961: 55), most of the records of the Westminister-London pipemakers' guild are lost, but in view of the variety of and the disagreement among the sources cited in the preceding pages, a re-examination of the Company's history might be worthwhile.

The granting of such monopolies was standard policy in the first half of the C17, as can be seen from the unsuccessful attempts between 1615 and 1638 to make tobacco-importing a monopoly (see 1: V). According to Oswald (1960a: 42 n.5), a monopoly to supply clay for pipemaking was granted to Messrs Kirk and Maxwell in return for their services in securing the incorporation of the tobacco-pipe makers in 1619 and for instructing them in how to fire pipes with coal. T.P. Cooper, however, states (1907: 104) that a Philip Foote of London obtained a licence in 1618 to sell clay for pipe-making for 21 years, and that a little later his brother William was granted for right as Philip had died "and bad clay [was being] sold by others."

That Kirk and Maxwell had some sort of monopoly on pipeclay, and that it continued for a considerable time (or at any rate its holders claimed it did) seems evident from a suit in the early 1640s between George Kirk and James Maxwell - presumably the Kirk and Maxwell of the reference of ca.20 years earlier - and Alexander Fellows, who was apparently a Poole entrepreneur (Cooksey MS 1, quoting SPD Charles I p.567, 1641-43). Fellows had rented ground at Purbeck "fit for making of tobacco pipes and brought a barque thereof to London in Contempt of the Kings Grant," which clay had been seized by agents of Kirk and Maxwell. Fellows had "violently rescued" part of his clay "by breaking up the whare house in which it was stored" and sold it to pipemakers. Fellows alleged that all this time he had been waiting for an answer to "his first petition to the Lords," but he had subsequently returned to Purbeck and brought another barque of clay to London, which had also been seized and again rescued by Fellows "with the assistance of one Elliott". Kirk and Maxwell also claimed that Fellows was apparently "either a chief exporter of tobacco pipe clay or an assistant thereto for information was given to the Attorney General about Michaelmas last of 200 tons transported to Rotterdam last summer by one Cornehill, a partner of Fellows...." Over 25 years later, Thomas Cornell, merchant, was still working in association with Fellows and hiring boats to supply pipeclay to 15 ports from Plymouth to Newcastle upon Tyne, Fellows having the right to sell clay to the people of Poole (Cooksey MS 1, citing document of 1669, DRO no 9366). From this it would appear that Fellows and Cornell survived the attempts of Kirk and Maxwell to enforce their monopoly.

Whatever monopoly Kirk and Maxwell had in the 1620s and 1630s, however, Philip Foote certainly had a monopoly too, for it is noted in at least two documents in the Public Record Office. One, E.178/4242, is a writ to find whether "Phillipp Foote" of London, a cooper, had discovered any means "to prepare clay or earth of such Composicion, temper and quality as hath benefitt and good for the use of Tobacco pipemakers to make thereof their Tobacco-pipes" as specified in Letters Patent granted him on 24 July 16 Jas. I (1618); whether he had used or now used "any mixture or art at all in the mingling or preparing of the clay or earth" for sale to pipemakers or whether he sold it as taken from the ground; whether others used the same clay as Foote had undertaken to sell and if so how long they had used it before Foote's undertaking; and whether Foote had paid the annual rent of £6 13s 4d as specified in the Letters Patent. The result of the inquiry, held in the "Towne Court House" in Westminster on 24 September 21 Jas. I (1623) gave the answer no to points one, two, and four; and noted in answer to point three that on 1 May 10 Jas. I (1612) and prior to that a Lambeth potter named Peter and an East Smithfield distiller called Walters (a blank is left for each christian name) had supplied and used the same type of clay as Foote had undertaken to sell. This indicates that Philip Foote was still alive in 1623, so if T.P. Cooper is correct in saying Philip's brother

William continued the monopoly Philip's death must have occurred after that date. Presumably Philip was able to continue to hold his monopoly despite what seems to be an extremely adverse finding by the inquiry.

The other document, PRO C.2/38, has recently been transcribed by R.H. Cooper, to whom I am grateful for information on its contents (in litt. dated 8 October 1968). It concerns an infringement of Foote's patent - which here is dated not to 1618 but to 18 July 1620 - to be the sole supplier of clay for pipe manufacture (which he was obtaining from a John Overy of Hartley, Kent) "in this Realme of England or the Domynion of Wales". This document notes Foote was a citizen and cooper of London. Presumably this Philip Foote is the same as that listed as one of the first Wardens of the Westminster pipemakers' guild in its 1619 charter. (This charter also mentions an Alexander Foote, but no William.)

According to Oswald (1960a: 43) the monopoly in clay was withdrawn in 1639: this date would coincide with the end of the 21-year licence granted Foote in 1618. (The SPD for the years 1638-40 have several claims and counterclaims by those trying to continue a monopoly in clay and those protesting the illegality of these actions.) There is no reason why such a monopoly should not be granted before the formation of the pipemakers' guild and its monopoly, for pipemaking had been a going concern in London from well before 1600. The whole question of clay monopolies may always have been one of confusions and rivalries, however, for Cooksey (MS 1) has found two agreements for the exploitation of Poole clay for tobacco-pipe manufacture during this period. The first (DRO J.45), dated 17 April 1619, was between Swithin Bonham of Poole - who as noted above was, like Philip Foote, a founder-member of the Westminster pipemakers' guild - and Sir John Webb, allowing Bonham to exploit land belonging to Sir Thomas Brudenell of Deane in Northamptonshire for a period of seven years; the second (DRO, number not given) may have been a re-lease of this land, this time to a William Cooper also of Poole - like Bonham, described as a gentleman - by Brudenell directly and for 21 years, and was dated 19 November 1625. Both leases were for an annual rent of 10s to be paid semi-annually on Lady Day and Michaelmas; Cooper was given 15 days' grace for late payment, five more than Bonham, but agreed to pay Brudenell £4 10s for any default in rent payment. On the face of it these agreements contradict the Foote monopoly, which seems very strange when one considers Foote and Bonham were both Westminster guild members and can hardly have been ignorant of each other's grants. Hopefully, further research will be done on all these various agreements.

London, as already noted, was the major pipemaking centre during the first half of the C17. Successfully appealing against a tax imposed on pipes, the Westminster company claimed that

> near 1000 poor people in London and Westminster lived in tobacco pipe making who now for want of such employment are beggars. Several thousands of other tobacco pipe makers throughout England and Wales are in like manner ready to starve (quoted in Oswald 1960a: 42).

It went on to claim that the pipe industry had been cut to an eighth, foul pipes were being reburnt, and the sea trade was being lost. (Oswald gives the date here as 1643 (also given in Oswald and James 1955a: 187), but this appears to be an error, as the guild had been dissolved in 1639 - see above.) (According to Latimer, however (1900: 72), an excise duty on "tobacco pipes of all sorts, to be paid by the first buyer, for every grosse four pence" was imposed by Parliament in July 1644, so apparently the 1643 success was short-lived.) Oswald notes (1970b: 227-8) 106 London pipemakers recorded in the period 1600-50 and 224 for the period 1650-1700, and suggests that when other as-yet unknown pipemakers and the assistants likely to have worked with each pipemaker are included 1,000 connected with the trade ca.1643 may not be so far from the mark. However, in citing a source of ca.1800 that seven Liverpool pipemakers employed 60 men and as many women as grounds for there being a considerable number of pipemakers' assistants in the earlier C17 Oswald is juxtaposing a C19 industrial concern with the small family business of the earlier period, which is not valid.

Even allowing for an exaggeration in the number connected with the trade ca.1643, however, it seems likely there existed many more pipemakers than those at present known. For example, a ca.1696 list of London pipemakers' guild members who swore allegiance to William III notes 44 masters and 229 journeymen, of whom 14 of the former and over 200 of the latter were hitherto unknown names (I am greatly indebted to R.H. Cooper (in litt. 29 February and 19 December 1972, 11 August and 2 October 1975) for supplying me with this information and a transcript of the document). The figures incidentally suggest the average master in London had about five journeymen; assuming he also had one or two apprentices one might suppose ca.300-400 individuals were directly involved in the trade. When the dependants of the masters and journeymen are added, the number of Londoners living on the proceeds of pipemaking at the end of the C17 would certainly be over 1,000. To this could be added those involved in supplying clay. Houghton (1693/4: 205) implies an average business at that time might have six hands, and this figure is noted in a 1757 notice advertising a pipemaking business for sale at Great Yarmouth (quoted in Oswald 1970b: 239). Certainly Oswald's recent figures (cf with those in Oswald 1959c: 202; cf also Oswald 1960a: 42) emphasize even more than his earlier ones that London was the centre of the industry in the first half of the C17. (The above two sections, dealing with the London pipe and pipeclay monopolies, have appeared in print in an earlier form in I. Walker 1972a.)

It has been stated (e.g. Fairholt 1859: Jewitt 1878: II, 456) that Winchester had a reputation for manufacturing superior-quality pipes at the beginning of the C17, for Ben Jonson in Act I scene iii of The Alchemist, which appeared in 1610, extols the merits of Winchester pipes. However, R.H. Cooper, who has studied the pipe-industry of this area for a number of years (in litt. 26 August 1968 with letter to Hampshire Chronicle 29 August 1964; and 8 October 1968) says he has found no evidence for pipemaking in Winchester before the mid-C17. He suggests the term "Winchester pipe" used by Jonson refers to pipes made in the low-class Liberty of the Clink, Southwark (where the Globe Theatre was), which came under jurisdiction of the Bishop of Winchester (see George 1925: 85, 1966 ed). Shakespeare, for instance, talks of the prostitutes of the area as Winchester geese (Troilus and Cressida Act V scene xi, noted in Mitchell and Leys 1958: 298, 1963 ed), and such an area might well have been a haven for pipemakers similar to East London (see 4: VI) - the Borough, Southwark, was certainly a pipemaking area by the beginning of the C19 (E.P. Thompson 1963: 869 n.3, 1968 ed; see also comments on Bristol pipemakers migrating there among other places in the later C18 in 6: V). Cooper points out that in 1610 there must have been few pipemakers outside London as tobacco was not plentiful at the beginning of the C17 and what there was was largely imported through London, that the Westminster guild's monopolies would have crippled any Winchester industry, that Poole clay sent to London for as little as 1s a ton by sea would have cost more when landed at Southampton and sent to Winchester by land, and that until the late C17 Winchester was a poor town.

As noted in 1: V, smuggling of tobacco was widespread enough to suggest the use of tobacco was widespread, though in view of its cost perhaps not as common as contemporary writers appear to imply. Further, the Winchester industry prior to ca.1650 could have lead a semi-clandestine existence as appears to have been the case with the Bristol industry, in which case neither records nor marked pipes would be frequent. However, as Cooper notes elsewhere (in litt. 29 July 1968), a few years before 1642 the Westminster guild despite its chequered career was able to visit Southampton to search for unlicenced pipemakers, which suggests any unauthorized Winchester pipemaking would have been on a small scale. This, and Shakespeare's allusion, do strengthen Cooper's belief that "Winchester pipes" were London made and that Winchester was not a pipemaking centre, for it is difficult to believe any high-quality industry there would have bowed to the Westminster monopoly without registering protests.

Unfortunately, the confusion is compounded by A. Dunhill (1924: 220) who says that Gauntlett pipes (noted below) were made in Winchester in the later C17, continuing the tradition of famous pipes already noted by Jonson. On this authority the story is repeated in the standard work on Jonson and his plays when commenting on the Winchester reference (Herford, P. Simpson, and E. Simpson 1950: 65), where as a final touch of confusion the source is noted as A.H. Dunhill in N&Q vol CLXXXII (1942) x - the reference is in fact on p.139 of that volume and is actually a repetition of the 1924 reference above in Dunhill sr's book.

In the second half of the century Bristol becomes the largest centre for exporting pipes, its pipemakers' guild being formed in 1652 (Latimer 1900: 239); and pipemakers are very common in the areas to the south and east of Bristol as well. Oswald suggests (1960a: 44, cf fig 17) this was the result of the withdrawing of London's tobacco monopoly and the growing of local tobacco in the area.

Another major centre at this time is Broseley (Oswald and James 1955a: 1955b) in Shropshire, where for a time a superbly-finished product and abundant coal (the use of wood being strongly discouraged by the government because of deforestation) and probably initially - until the early C18 in all likelihood - local clay (see 2: IX) overcame the disadvantages of an unrewarding geographical situation and resulted not only in trade in the Midlands, down the Severn valley, and in Wales, but in a considerable trade of pipes of Broseley bowl-forms in central England and in Wales presumably of general West Midlands manufacture. A few Broseley and Broseley-style pipes are also known from North America. (Distribution of Broseley and Broseley-style pipes in England and Wales and in North America is described in 6: VII(c).)

A third centre, smaller than Broseley - indeed famous for the products of a single family - was Amesbury in Wiltshire, ca.8 miles north of Salisbury, a place with even fewer geographical advantages than had Broseley. Pipes made by the Gauntlet(t) family there enjoyed a high reputation and a wide market - some held their pipes to be the best in England, and to judge by the astonishingly high prices they commanded and the fact that the Gauntletts, if not pipemakers to royalty, supplied at least a duke and a marquis, this reputation may not have been exaggerated (for the cost of Gauntlett pipes compared to others see 5: I). The family must have already been famous by 1640, for in 1641 or 1642 they supplied pipes to the first Marquis of Hertford (Morgan 1945: 20, 13) - who subsequently (in 1660) became second Duke of Somerset (DNB vol LI) - and in 1651 and 1652 Hugh Gauntlett, at the sign of the "Swan" at Amesbury, was supplying pipes to the Duke of Bedford (Atkinson 1965c: 95 n.11 citing Life of a Noble Household, accounts of the duke at Woburn Abbey and at his London house). A lease of 8 April 1675 notes a William Gauntlett of Netherhampton at the "Swan", holding "from the Earl [sic] of Hertford...a message, tenement, and the Swan Inn at Amesbury, together with the bailiwick of all the markets and fairs in Amesbury, including St. John's fair" (W.E. Brown 1959: 243).[2] This may have been a son of Hugh; Aubrey records a William Gauntlett of Netherhampton born at Amesbury. In any event he was clearly a man of some social position, and the connection with the Hertfords is interesting, suggesting this was how the Gauntlett pipes first attracted noble patronage.

There is other evidence to connect the Gauntlett family with Netherhampton, which is about two miles west of Salisbury: a John Gauntlett, "gentleman", held the tithe barn there in 1631 and there are monuments in the church there dating from 1672 until 1713 with the name. Netherhampton House may have been built by a member of the family later in the C17; the design on the wrought-iron gates there is supposed to be a lump of pipe-clay on an iron spike, the Gauntlett crest (W.E. Brown loc. cit.). In 1942 one J. Benett-Stanford noted (N&Q vol CXXXII 14 February 1942 p.96) that the family was extinct in Amesbury and represented only by a tenant of his living at Norton Bavant, ca.3 miles SW of Warminster and ca.15 miles west of Amesbury.

The family's trade-mark - a gauntlet on the pipe heel - was certainly widely plagiarized, one story being told of a maker who successfully claimed when sued for pirating the mark that he had altered the position of the thumb and that heraldically there was a valid difference between a hand dexter and sinister (quoted in E.T. Stevens 1876: 104-5 and W.E. Brown 1959: 243 from Thomas Fuller's The History of the Worthies of England of 1662) - however, if Atkinson's identification of genuine Gauntlett products (1971: 179-80, 178 fig 1,6 and 12 and pl XI,a) is correct, this story, though presumably contemporary (Fuller died in 1661), must be apocryphal, for Atkinson's genuine marks include both left and right hands. In all, Atkinson (1962e: 183-4; 1965c: 86, 88, 89 fig 1, rev ed 1969b; 1970c: 212-3, fig 4; 1971: 179-80, 185, 178 fig 1,6 and 12 and pl XI,a; 1973: 154) has classified at least 22 different stamps of this mark, some with various makers' initials, in the Amesbury and Salisbury areas as well as one from Basing in Hampshire and an obvious forgery from the Bristol area - this last is of interest, for certainly in 1710 Gauntlett pipes, whether actually carrying a gauntlet mark or not, were a specific type being made in Bristol, for a decision agreed to in that year among Bristol pipemakers to standardize lengths of various types of pipes specified that "Gantlett" (sic) would measure 11-1/2 ins "from the Heel in the direction of the Point" (p. 109 n.10) (entry in Bristol Pipemakers' Guild Book), a length which makes them among the shorter Bristol pipes of this period as the other types listed (see p.15 above) ranged from 8-1/2 ins up to 16 ins. Other plagiarizations are known from Winchester, Worcester, Broseley (cf R. Thursfield 1863: 79, pl IX), and London. A Dunhill (1924: 220) and presumably quoting from him his son A.H. Dunhill (N&Q vol CLXXXII 7 March 1942, p.139) claim the mark was imitated even in The Netherlands. By the end of the C17 another Amesbury pipemaker is known, Gabriel Bailey, who apart from producing orthodox pipes marked with his name is probably the maker of an unusually large bowl with a mark on the heel comprising a gauntlet with the letters G and B on either side inside a band with the circular inscription * AMSBVRY * PIPES and below this the date 1698 (E.T. Stevens 1876: 102 fig 36, 103; W.E. Brown 1959: 243, fig 4): it has been suggested (W.E. Brown 1959: 243; Atkinson 1971: 185, 180) that this is evidence that Bailey took over the Gauntlett business at this date, though as Brown notes, Bailey may have been a competitor rather than a successor of the Gauntletts. However, Atkinson observes that it is from ca.1700 that the majority of uses of the gauntlet mark with other makers' initials occur, presumably because the gauntlet was no longer being protected as a mark and thus presumably indicating that the Gauntlett family was no longer in business. How early the Gauntletts were making pipes is unknown; as noted above they were clearly renowned by the 1640s, but one of the earliest pipes known is one with a gauntlet heel-mark and a semi-illegible inscription scratched on the back and sides of the bowl seemingly referring to Queen Elizabeth which can be dated to ca.1600 or earlier and already has elements of the West Country chinned shape (Atkinson and Oswald 1969: 192, 193 fig 8,57), and another tiny bowl with a gauntlet mark and datable to ca.1600 has recently been recorded from London (Atkinson 1973: 154).

It is said the family used local clay from Chitterne, ca.10 miles west of Amesbury: if so, it is interesting that they could produce such sought-after products from a clay which, however conveniently located, cannot have been of a quality comparable to that from Poole. (Amesbury clay was still being used ca.1840, but for what purpose is unknown (W.E. Brown 1959: 244).) The traditional site of the Gauntlett factory in Amesbury is Sloanes Garage in the High St, but recent rebuilding of the garage (D.G. Hurst 1968: 114) failed to reveal any evidence. (For information not otherwise documented in the above three paragraphs see E.T. Stevens 1876: 101-8, also W.J.B. Smith 1869).

In the first half of the C18 the Bristol industry continues to expand rapidly, approaching London in number of recorded pipemakers, and Chester also expands (Oswald 1970b: 227). Kingston upon Hull has its most prosperous time during the C18 (Oswald: loc. cit.), perhaps in the earlier part (cf Sheppard 1902: 16-17, 1912 ed). The peak of the Marlborough industry was ca.1700 (Atkinson 1965c: 88, 94 rev ed 1969b), and at Salisbury (Atkinson 1971: 181) and Winchester (Atkinson in litt. 31 December 1971) the peak was in the earlier C18. At York (Anonymous 1954a: 1st page) the maximum number of makers recorded occurs during the second quarter of the C18. Fairholt (1859: 127-8) quotes a source indicating that Queen Anne's reign saw the height of smoking in England - it has been estimated that the per capita tobacco consumption at the beginning of the C18 was two lb or more a year (Rive 1926: 63; Penn 1901: 84-5), a figure not again reached until 1900 (see 1: VIII). Certainly by the second half of the C17 smoking appears to have been almost completely accepted socially, to judge by remarks of contemporary observers on, for example, smoking by the clergy (examples given in Dickson 1954: 157).

As the C18 progressed, however, there was a general decline in smoking (Trevelyan 1942: 390-1, 1946 ed; Oswald 1960a: 54), particularly among the more pretentious classes; and snuff, which appears to have been increasingly used in society after the Restoration in 1660, seems to have become quite general in Anne's reign when a taste was set by the capture of immense quantities in the Spanish ships taken at the battle of Vigo Bay in the first year of her reign, 1702 (A. Deane 1914: 3, 10; Corti 1930: 187-8, 1931 ed; Trevelyan 1942: 315, 1946 ed).

Beau Nash at the beginning of the C18 insisted that there be no smoking in the public rooms at Bath because it was disrespectful to the ladies (Trevelyan loc.cit.), no doubt contributing further to the decline of pipe-smoking in the respectable classes. In 1775 a man bemoaned not being allowed to have his pipe because his wife had social ambitions and that it was "ungenteel to smoke, where any ladies are in company" (quoted in Apperson 1914: 100). By the second half of the century Dr Johnson could record - apparently with some surprise - in 1773 that "Smoking has gone out" and William Cowper in 1782 puzzled (in verse) as to why snuff was so much in favour while pipe-smoking was taboo (both quoted in Apperson 1914: 119). Other contemporary references during the C18 indicate that while smoking was common enough in the middle and lower classes - clergy, country squires, merchants, tradesmen, and the rank and file - it was no longer fashionable for the upper classes and those aspiring to those classes (Apperson 1914: 90-1, chapts VII-VIII; A.H. Dunhill 1954: 106-7, 1961 ed; cf Mackenzie 1957: chapts 9-11). One contemporary of the period commented that smoking continued thanks largely to the army, the Universities, and the "simpler people who remain faithful to the pipe" (quoted in Anonymous n.d. [14]: 6th page).

This decline is reflected in the reduction of pipemakers recorded during this period (Oswald 1960a: 45, fig 18), and though these earlier numbers may have over-emphasized the picture (cf Oswald 1970b: 227, 228) there is no denying a country-wide fall in the pipemaking industry. After its zenith ca.1700 the Marlborough industry rapidly dwindled, there being only one maker there after ca.1730 and apparently none after ca.1750 (Atkinson 1965c: 88, 94, rev ed 1969b). At Salisbury (Atkinson 1971: 181) and Winchester (Atkinson in litt. 31 December 1971) too the pipemaking industry had declined by mid-century. The Broseley industry fell sharply in numbers of makers recorded (Oswald 1970b: 227) and the Bristol industry, which had been relying on its New World trade for its continued relative prosperity, was severely hit first by the Stamp Act troubles of 1765-66 and then by the American Revolution in 1775, resulting in the loss of the export trade there. In 1787 John Frederick Bryant jr, "late tobacco-pipe maker at Bristol", published some poetry and an account of his journeys of from 10 to 20 miles from Bristol as he tried to sell his pipes, chiefly to aid him in his poverty as the "tobacco-pipe trade [was] greatly on the decline". Bryant's father's business appears to have been prosperous until the Stamp Act troubles with the American colonies, when it was severely hit (Bryant 1787: vii-viii and passim; cf MacInnes 1939: 269-70) - this indicates that Bryant sr had been relying on the export market for his livelihood which in turn implies the home market was either unsought-after or indifferent.

The exception to this decline is Liverpool (see 4: II), where there is an increase in the number of pipemakers, due, Oswald suggests (1960a: 45), to the growth of that city at the expense of Chester as a result of the slave trade and privateering. Despite this general decline in smoking, Chester pipes in the late 1700s were esteemed by one source the best in Europe and were exported in great numbers, but by the early 1800s this trade had gone and only an attenuated home market remained (quoted in G.C. Spence 1942: 48-9).

The advent of the industrial revolution brought a revival to clay pipe manufacture, at least in the areas of growing industrialization and increasing working-class population. In the first half of the C19 pipemakers appear all over industrial England - the North-East, Lancashire, western Yorkshire, the Midlands, and the Home Counties, and also - curiously - in East Anglia and Lincolnshire (cf Oswald 1970b: 227). The decline of the Bristol industry towards the end of the C18 was, Oswald correctly suggests (1960a: 46; cf remarks above), due to the loss of the American trade. Bristol appears to have been the principal exporter of pipes at least to Virginia from ca.1660 until the end of the Colonial period, apparently making an "export only" model for the colonies in the C18 (I. Noël Hume 1963: 164), though at Williamsburg, Virginia's capital in the C18, Londoners did continue to have a large proportion of the trade (Atkinson and Oswald 1969: 205).

Smoking took a long time to regain social respectability following its decline in the C18. Not until the second half of the C19 did public smoking, whether out-of-doors or inside, begin to become respectable among the respectable classes, and pipe-smoking lagged behind cigar- and cigarette-smoking in this respect (Penn 1901: passim; Apperson 1914: chapts IX to XII; cf Trevelyan 1942: 391, 1946 ed and A.H. Dunhill 1954: 107, 1961 ed) - indeed there are exclusive restaurants which will permit cigars and cigarettes but not pipes (cf A.H. Dunhill 1954: 22, 21, 1961 ed). (Similarly in France, where it was not until the early C19 that pipe-smoking began to be socially respectable and spread beyond the working classes, pipes are forbidden in casinos and certain other public places (Herment 1954: 16-17, 17 n.4, 1965 ed).) As noted in 1: VII(e), smoking was considered a sinful indulgence by evangelicals of several religious persuasions in Victorian times, and to it was ascribed part of the poverty of the poorest classes. Thus in temperance novels and tracts, for example James Yeames's "Pot, Pipe, and Poverty, or, the three P's", the hapless poor are assailed by the abstainer-clergyman, when caught having a quiet drink and smoke, with the instruments of their folly and downfall in their hands (noted in Keating 1971: 41). This reinforces the evidence suggested above for the industrial revolultion and the rapidly-expanding working-class population restimulating a demand for clay pipes.

Finally, from the middle of the C19 the clay pipe, which, Oswald says, had been struggling against competition from meerschaum pipes and the cheroot holder (some of which were made of pipeclay - one is in the W.D. and H.O. Wills Collection and a similar type was listed in a catalogue of Wm Southorn and Co. of Broseley probably dating to the beginning of this century), received what was to be its death-blow, albeit not without a prolonged and bitter struggle, from the newly-introduced brier pipe (Oswald 1960a: 46; 1970c: 228).

The clay pipe, however, held out well into the C20, generally in industrial centres but also in rural areas. The last Bath maker closed in 1919 (Brown and Brown 1974: 27), the last Bristol maker closed in 1921 (Pritchard 1923: 190); the last Nottingham maker at the beginning of the 1920s (Alvey 1973: 35); the last Lincolnshire maker worked in Grantham up to ca.1927 (P.K. Wells 1972: 13, 15); the last York maker into the 1920s or 1930s;[3] the last Cheshire maker closed in 1927 (G.C. Spence 1942: 56), though the firm was still selling stock when Spence was writing; the last in Gateshead in the late 1930s (Parsons 1964: 240, 250; cf Oxberry 1937: 64-6); the last in Edinburgh ca.1942 (Anonymous 1964b), though it continued to make pipeclay blocks for doorstep-whitening until 1962; the last in Portsmouth after WW II (C. Green 1973a); the last in Sunderland apparently in 1953 (Parsons 1964: 240-1, 250); the last in Leeds in 1953 (Anonymous n.d.[2]: no pagination); the last two at Rainford in Lancashire in 1956 (Berry 1963: 8); and the last in Glasgow in 1967 (Walker and Walker 1969). Glasgow, indeed, was perhaps one of the last bastions of the trade, for as late as 1950 there were three firms in business. According to A. Dunhill (1924: 219-20), manufacture at Broseley ceased "a few years" before he was writing, but in fact the famous Southorn family continued to manufacture occasionally up to ca.1962 (cf Oswald and James 1955b: 225; Oswald 1960a: 95) - indeed, the family was still talking in 1968 of the possibility of going back into the business (and now has-see p. 14 n.7). A member of a London and SE England family of pipemakers, W. Swinyard, was producing pipes until 1926 at Aldershot for the troops (Atkinson 1964a: 76-78, 81 n.9); production for servicemen no doubt contributed to the longevity of the last Portsmouth firm which as noted above did not close until after WW II, for the firm, Leigh and Co of Portchester, were at one time contractors for pipes to Portsmouth Dockyard (C. Green 1973a). The last London maker recorded is Edward Back who last appears in London trade directories in 1944 - his business went back through different owners into the early C19.

While this writer was in Britain (1967-69) the only pipemaking firm still in business there after McDougall's closed was John Pollock and Co. of Manchester, who were then producing ca.250,000 pipes a year (a 1964 source says ca.350,000 (Anonymous 1964a) but this is probably incorrect) and took over some of McDougall's equipment on their closure (Walker and Walker 1969: 146).[4] In their last years McDougall's were still exporting to Canada, the

United States, the West Indies, and West Africa and were using between 30 and 40 moulds to produce the types of pipes preferred in various local areas at home, for example Glasgow, Edinburgh, Aberdeenshire, Ireland (Walker and Walker 1969: 145-6; Rodger in litt. 24 July 1969). In this continued use of different moulds to suit local tastes, McDougall's were carrying on a long tradition, for a 1799 advertisement among the pages of the Bristol Pipemakers' Guild Book lists variously-priced kinds of pipes, some "suitable for the different West-India markets", some "suitable for the different American markets", and some "suitable for the Irish and Spanish markets", indicating differing types of pipes were being made for different markets and indeed for various areas within the same market. Earlier still, the production in Bristol from the end of the C17 into the earlier C18 of heelless "export only" bowls (see above) indicates the same recognition of different tastes in style. Pollock's also export widely, their pipes going to Belgium, Sweden, Canada, the United States, and Australia (J. Peterson 1968: 14). The traditional export trade in pipes, which is almost as old as the industry itself, thus continues.

SECTION II:
THE NETHERLANDS

The earliest known reference to the use of tobacco in The Netherlands is in a decree of the town of Enkhuizen in February 1580 when its sale, along with that of beer, wine, and brandy, was forbidden on a forthcoming feastday (Brongers 1964b: 21-22). Smoking is not specifically mentioned, and the tobacco could have been for chewing, but smoking in some form was certainly known in England well before that date (see preceding section) and in the Rhineland by 1587 (Corti 1930: 100, 1931 ed; Brongers 1964b: 19-20). In 1598 a Dutchman, Emanuel van Meeteren, wrote of the popularity of smoking in Europe, especially England, and noted silver and earthenware pipes (Brongers 1964b: 17). By 1610 tobacco was one of the principal imports of The Netherlands (Anonymous 1960: 81) and by 1615 it was being grown on a large scale in the province of Utrecht. In the following decades its cultivation spread widely in The Netherlands (Brongers 1964b: 71).

The first three decades of the C17 saw the beginning of pipemaking in a number of centres in The Netherlands, modern Belgium, and northern Germany (except where otherwise noted, this section on Dutch pipemaking is based on Helbers and Goedewaagen 1942). The industry was brought from England by people leaving because of increasing religious dissatisfaction following James I's coming to the throne in 1603, and by English soldiers of fortune in the armies in the Low Countries at that time. The earliest-known reference to a pipemaker in The Netherlands is in 1611 when an English pipemaker in Amsterdam took legal action against another pipemaker (Brongers 1964b: 31-2). The first well-known Gouda pipemaker and the generally-accepted father of the Gouda industry was another Englishman, William Baernelts, who commenced business in 1617: before Baernelts's death in 1625 other Englishmen had set up business in Gouda and were attempting to plagiarize his mark. Another Englishman obtained a monopoly for supplying clay for pipemaking in 1627. In the early C17 in Gouda it is noticeable from wills that pipemakers were often middle-class and generally had several premises. (Hendrickx (1963: 154) lists several of the English pipemakers in Gouda at this time and gives slightly more detail on this period of the Gouda industry than do Helbers and Goedewaagen.) English pipemakers remained predominant at Gouda until 1637 but in 1641 Dutch makers there, now in a majority, tried unsuccessfully to form a guild which would exclude the English. It can thus be seen why English-derived technical terms occur in the Dutch industry.

As a result of this agitation in 1641, the Municipality of Gouda drew up certain rules, one of which attempted to deal with the perennial problem of plagiarizing makers' marks. Dutch makers' marks were either symbols, letters, or numbers, the latter two cases usually crowned. The letters were the makers' initials only in extremely rare cases, unlike the English makers' marks which almost invariably comprised the makers' initials. It seems that the Dutch use of symbols comes from the earliest English pipemakers who are known to have used such marks; the idea died out in

England early, but not before the emigrant English pipemakers had taken the idea to The Netherlands in the early C17. In 1660 the Gouda Pipemakers' Guild was formed and thereafter kept a comprehensive list of makers' marks and evolved complex rules regarding their disposal by being sold, willed, or in other ways, as well as regulations on all the myriad minutiae of the entire industry from which pipes were to be decorated to what was to be paid the bargees for transporting the finished articles. Gouda seems to have become the major Dutch pipemaking centre almost immediately, attracting by far the largest number of pipemakers. It had since medieval times been the centre of a pottery industry, and ca.1620 there were still 30 potteries in the city.

In 1665 there were 80 members of the Gouda Pipemakers' Guild; in 1679, 161; and by 1750, 374. At that time it was estimated that 7,000 of Gouda's population of 20,000 were directly connected with the industry. However, in the 1750s the city's trade, which was primarily geared to an export market which extended to Denmark-Norway (Pettersen and Alsvik 1944: 10; Kristensen 1959: 86, 87; cf Friederich 1964a: 10), Sweden (Puktörne 1968; 68-74, figs 2 and 4), Russia (Helbers and Goedewaagen 1942: 18), Poland (Żurowski 1949: 41 fig 35, 51 fig 41, 28-31; Rutkowska and Żaryn 1955: pls 37-38), West Africa (Nunoo 1957: 16-17, pl III btm, additional information Oswald *in litt.* 1 January 1969 and Nunoo ditto 23 May 1969; Calvocoressi 1968: 18, 17; 1969: 7; MS), the East Indies (Helbers and Goedewaagen *loc. cit.*),[5] the West Indies (unpublished material from H.G. Omwake dated 1966; Clerc *in litt.* 10 November 1967; Oswald 1968; 1969), and North America (e.g. I. Walker 1971c: *passim* and refs), was hit first in the 1740s by restrictions and then in 1747 by the ban on imported pipes by Sweden (Puktörne 1968: 72-3, 69 table 1), then by various admittedly short-lived attempts between 1749 and 1768 to ban or restrict by duties the importation of pipes in various parts of Denmark (Kristensen 1959: 88), by increased duties in 1753 and a ban on imported pipes in 1759 in Norway (Pettersen and Alsvik 1944: 12, 16, 18, 20, 22, 42); and then severely hit by parallel events in Prussia, where a duty was levied on imported pipes in 1754 and shortly afterwards they were banned entirely.

In England the importation of foreign pipes was forbidden under the terms of the Westminster pipemakers' guild charters of 1619 and 1634 and the London and Westminster pipemakers' guild charter of 1663, but Dutch pipes were being legally imported before the end of the C17 (Houghton 1695/6: 1st page; repeated in Jewitt 1878: I, 293) - there was a tax on them between 1696 and 1698 (see 5: 1) - and into the first two decades of the C18 (Sheppard 1902: 4-5, 1912 ed). To judge by the quantity of Dutch pipes found recently at Plymouth dating to the period ca.1630-70 and particularly to the first half of the century (Oswald 1970a: *passim*; 1970b: 230), and to Dutch pipes of the same period from Kingston upon Hull (Oswald 1970b: 230-1; cf Sheppard 1902: 16, 1912 ed) and Dutch influence on pipes from Edinburgh (see p. 347 below) and perhaps Ipswich (Oswald 1970b: 231) the superior Dutch products were being obtained illegally before that. A 1719 reference, however, indicates that the import of Dutch pipes into England was forbidden but that trading companies had been allowed to go to The Netherlands to pick up Dutch pipes for the slave trade as Dutch pipes were cheaper than English ones (noted in Donnan (ed) 1931: 241-2); and in the unpublished Gouda guild records there is a reference in 1789 to England having completely forbidden the import of Dutch pipes - certainly in C18 Williamsburg in Virginia the only time Dutch pipes appear is during the American Revolution (1775-83), at which time there was French support for the revolting colonies and disrupted trade with Great Britain (noted in paper "James Geddy and Sons, Colonial Craftsmen: An Exercise in Historical Archaeology" given by I. Noël Hume at the Spring 1968 Society for Post-Medieval Archaeology Conference at Cardiff; cf I. Noël Hume 1970c: 307).

These bans had widespread effects: the unpublished Gouda pipemakers' guild records noted in the late 1780s that it had prevented the sale of pipes in Brandenburg and Silesia (the latter now part of Poland) and also the shipping of pipes through Prussian territory to Lausitz and other areas. The Prussian restrictions were to protect the new pipe industries at Stettin (Szczecin) and Königsberg (Kaliningrad); at the same time the pipe industry at Höhr in the Westerwald near Coblenz was expanding, and this caused perhaps the biggest inroads in the Gouda industry, as the same documents indicate. Further, from the early C18 onwards the famous German porcelain pipe-bowls were being produced, these being among the first items made at Meissen and appearing there as early as 1710 (see following section).

Elsewhere, Dutch exports declined as German pipes, of lesser quality but lower-priced because they were produced in an area with a lower cost of living, took their place: ca.1760, 20,000 gross Gouda pipes were being exported annually to Norway, but by 1789 the trade, no doubt also affected by the efforts to start a native Norwegian industry (see below), was virtually dead. About 1765 ten boatloads of pipes were sent annually to Hamburg from Gouda; in 1789 only three were sent.

Other examples of the sort of problems Gouda pipemakers were faced with as more and more tariffs were raised against them are given in the unpublished guild records. A few years before 1785 an individual who was not a citizen of Gouda learned pipemaking there and then went to Antwerp where he set up business. As a result not only Antwerp but the whole of Brabant had levied such a tax on imported Gouda pipes that it was no longer possible to trade with that area. Again, ca.1775 a pipe-factory was being established in Utrecht and the people concerned came to Gouda and attempted to smuggle out sacks of Gouda pipemaking tools. There was in fact a guild rule in Gouda, approved by the City Fathers in 1750, that non-citizens should not be shown pipemaking tools or even be told about them. When Dunkirk bribed some Gouda workers to work there in 1749 at a time when Gouda trade was slack, the City Fathers called them back with an offer of 25 guilders and an assurance that they would be given priority in obtaining work. In 1758 the Gouda guild, hearing that a journeyman pipemaker, one Cornelis de Wilde, had gone to Bremen and had been hired there as a pipemaker and was attempting to obtain Gouda pipemaking equipment, warned him that unless he returned immediately to Gouda he would be forbidden to live again in Gouda and that his wife, if she followed him to Bremen, would also be forbidden re-entry. These examples give some idea of the tradition built up by the Gouda pipemaking industry, as well as the problems faced by a declining specialist trade.

The basic reason for the decline of the Gouda industry appears to have been the rise during the second half of the C18 of lower-priced German pipe-production. The unpublished records of the Gouda pipemakers' guild indicate that in the late 1780s - the time when Helbers and Goedewaagen note that Gouda trade to Norway was virtually non-existent - the northern trade, which presumably means Scandinavia and the Baltic, was very profitable for the long-stemmed and best-quality pipes but the market was made difficult for Gouda makers because Rhineland and Stettin pipemakers were cornering it with cheaper pipes, some of them plagiarizing Gouda marks (particularly the famous Het Lam onder den Boom - the Lamb under the Tree - whose then owner specialized in the northern trade). It is thus clear that with the decline of the native Scandinavian industries a market there for foreign pipes again arose, but by the end of the C18 it had been taken over from Gouda by more competitive German industries which had only just been starting in the middle of the century when the native Scandinavian industries had been set up under the protection of high tariffs and outright prohibitions.

About 1740, there were 29 kilns in Gouda, in 1789 there were 17, and in 1806, 11. Pipe production for 1805 was two-thirds less than for 1750. The 374 makers ca.1750 had fallen to just over 280 by ca.1771, and to 130 by 1805. As late as ca.1771 several makers still employed 60 to 70 workers, giving some indication of the size the industry must have been in its prime. From this remark it is evident that "pipemakers" registered by the Gouda guild were the factory owners, and not the rank-and-file makers, and from what Duhamel du Monceau describes of the production methods it is clear that pipemaking was a real industry, similar to that in C19 Britain, and not at all like the "cottage industries" of the English C17 and C18 pipemakers.

The Naploeonic occupation of The Netherlands in 1795 was a major blow. In 1798 the French government imposed a tax on Gouda pipes sold west of the Rhine which more than doubled their price (Gouda guild records), and the guild was officially dissolved the same year on the grounds that it was a restrictive organization. However, "Commissioners for the Pipe Industry and its Factories" continued, and in 1806 they were petitioning to have the 1798 tax repealed. In 1826 the same Commission petitioned the king to see that a decree of 1818 against the perennial problem of Gouda marks being plagiarized in other pipemaking centres was being adhered to, that the Nederlandse Handels Maatschappij (Netherlands Trading Company) be asked to place orders for pipes with Gouda makers, and that the Prussian prohibitions of some 70 years previously (see above) which prevented Gouda pipes being shipped to eastern Europe be lifted.

In particular the Commission noted that they were losing their wide foreign trade to places such as France, Spain, Portugal, the Mediterranean area, Asia, Batavia and Sumatra in the Dutch East Indies, North and South America (Charleston and Rio de Janeiro are mentioned) and especially the Dutch colonies there. Cigars, which had been, they said, "in general use for a long time" and "a foreign type of pipe" (German porcelain pipes?) were also noted as affecting the Gouda pipe market. (According to Brongers (1964b: 219-20; also in Anonymous 1951: 113) the cigar other than as a curiosity did not appear in The Netherlands until the end of the C18, but became popular during the first half of the C19. The first Dutch cigar-factory was opened in 1826 (Brongers 1964b: 220).) The Commission cite the high praise given to their products the previous year at an exhibition at Haarlem and how superior their pipes were held to be over

English exhibits as proof that the old skill was still there. A smoker, it was averred, would break three of other makes of pipe to one of a Gouda pipe, and Gouda pipes could be refired to clean them three or four times as often, as other pipes (Gouda guild records).

Subsequently a pipemakers' union was started, in 1855, and once more set itself to problems of registering marks and keeping them distinct from one another. It continued to exist until 28 November 1911, when, moribund, it was dissolved. (The preceding paragraphs are based on Duhamel du Monceau 1771: 6; Helbers and Goedewaagen 1942: 14-15, 17, 18-19, 48; Fresco-Corbu 1963: 424-5, and Brongers 1964b: 31-6 except where otherwise noted.)

Gouda pipes came in three classes - ordinary, fine, and porcelain - and in 1739 and 1740 Gouda pipemakers were permitted to put distinguishing marks on these classes. Unfortunately there is confusion as to which marks indicated which classes. In one place (p.18) Helbers and Goedewaagen say that in November 1739 permission was given for pipemakers to differentiate the *porcelain* class from the others by adding the Gouda coat of arms to the bowl beside the maker's mark to prevent merchants mixing inferior pipes with those of the best class. However, sales of *fine* pipes dropped so much because buyers thought they (being unmarked) were *ordinary* pipes (also unmarked) that on 4 March 1740 permission was given to mark *fine* and *ordinary* pipes with the arms, surmounted by the letter S (Dutch *slegte* - ordinary)[6] on both sides of the bowl. Elsewhere, however, (p.48), it is stated that *fine* pipes were to have the single arms and the letter S for *ordinary* pipes, porcelain pipes presumably being left unmarked. The differences can be presented as follows:

Porcelain	single coat of arms (1739)	no mark
Fine	double coat of arms, each surmounted by the letter S (1740)	single coat of arms (1739)
Ordinary	as *fine* class	double coat of arms, each surmounted by the letter S (1740)

The confusion may lie in the wording of the original documents permitting the use of these marks, for among the unpublished Gouda guild material translated in Ottawa is a reference ca.1790 to these decrees, and the first one (dated 26 November 1739) talks of "fine porcelain pipes" while the second one talks of "ordinary fine" pipes, suggesting two rather than three classes of pipes. (For illustrations of these marks see I. Walker 1971c: figs 5b and 10.)

Whatever the precise meaning of these marks, they indicate that pipes thus marked cannot be earlier than 1739-40 - this has proved useful at C18 sites such as Louisbourg (I. Walker *op. cit.*) where the main occupation was ca.1720-60, and at Varberg fortress in Sweden (Puktörne 1968: 72-3) where four identical Dutch bowls could be dated to between 1739-40 and 1747 when Sweden banned the import of foreign pipes.) As these marks were put only on certain classes of pipes, their absence cannot be taken to prove a pre-1739-40 date for pipes not so marked, and indeed it appears the use of these marks must have been abandoned some time subsequently - perhaps during the French occupation of The Netherlands at the turn of the C18 - for in 1814 it is noted that the 1739 and 1740 regulations were reinstituted (Helbers and Goedewaagen 1942: 52). However, these marks do offer a very useful dating horizon when found on material in archaeological contexts.

From shapes deriving from English pipes at the beginning of the C17 Dutch pipes gradually evolved in their own way. The only attempt to establish a typology of Dutch pipes has been that of Friederich (1964a-d; 1970). His dating system is a statistical method involving multiplying various measurements taken from the bowl and equating the resulting figure to a dated graph (see 1: II(b)). Although it is far from clearly explained, this system may have some validity (some preliminary work by this writer and Miss E.A. Wylie of the National Historic Parks and Sites Branch in Ottawa suggests that at least with English pipe-bowls there are certain broadly-measurable trends) and in several instances this writer has been able to date Dutch material from stratified deposits and to find general agreement with Friederich's dates, but until the system has been proved by comparison with archaeologically-dated pipe material - Friederich makes no mention of having done this - it cannot be accepted without reserve. However, a useful guide in English, giving a typology of the major types of Dutch pipes based on Friederich's work, together with a collection of makers' marks on Dutch pipes found in England, has been published by Atkinson (1972d).

As can be seen from Oswald's English pipe typology, there appears ca.1680 a quite different type - his type 9. This type is generally ascribed to the influence on traditional English pipe styles of the Dutch pipes brought over by followers of William of Orange in 1688 (1: II(a)). Although this explanation was put forward at least as early as 1852 it is not clear which Dutch form would have been the prototype. Omwake (1965b: 13) describes it as having a large heelless, straight-sided and cone-shaped bowl set on the stem at an angle only a little more than 100° and with the plane of the top of the bowl parallel to the line of the stem. Omwake did not illustrate the pipes he had in mind, but presumably he was referring to a distinctive pipe usually carrying the characteristic Dutch style of maker's mark which has been found on sites in New York state in contexts within the known Dutch area of influence in the C17, including at Fort Orange on the site of present-day Albany where the Dutch occupation was 1624-75 (Hagerty in litt. 6 January 1969 and paper "Trade Pipes" given at the Spring 1970 Symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state; McCashion in litt. 11 September and 9 November 1971 and paper "Pipe Dreams: the Dutch and their Elusive Pipes" given at the Spring 1972 Symposium of the Council for Northeast Historical Archaeology, Bear Mountain), and have also been recovered from the wreck of the Dutch East Indiaman the Slot ter Hooge which sank off the Madeira Islands in 1724 while en route to Batavia (Djakarta) by way of the Cape (Sténuit 1975: 274-5 illus., item 13). An example of this bowl form is illustrated in FIG 121, and follows Omwake's description except that the plane of the bowl rim is not parallel to the stem.

Comparisons to English type 7 bowls, which as noted in 1: II(a) have been suggested as showing Dutch influence as well as type 9, are not really close, though as the type 7 style of parallel- or roughly parallel-sided bowls does appear as a new form in England ca.1660 with no known native antecedents some outside influence might be postulated. The form shown in FIG 121 is not a shape illustrated in any survey of Dutch pipe material known to this writer, but according to McCashion (in litt. 26 August 1973), Friederich has noted a bowl of this shape found in the Amsterdam area which he (Friederich) dates to ca.1690. It is possible that this bowl form is an "export only" shape and relatively rare in The Netherlands - studies of Dutch pipes in The Netherlands, especially excavated material, are not as far advanced as is research on English material or material from colonial North America.[7]

Moreover, this writer has discovered in contexts of the first third of the C18 at the French fortress at Louisbourg, Nova Scotia, another apparently hitherto unrecorded shape of Dutch pipe (FIG 122) which typologically is a more convincing prototype for the English type 9 series (I. Walker 1971c: 111, 113 fig 44). As can be seen, it has the plane of its bowl rim parallel to the line of the stem, and this is an extremely unusual feature on Dutch pipes. As Friederich's illustrations show, the marked angle of the bowl rim to the line of the stem was one of the most characteristic features of Dutch pipes, and one which tended to become more extreme with time, continuing at least until the end of the C19 (cf Brongers 1964b: 79). In view of this conservatism, it has been postulated by this writer that the type illustrated in FIG 122 failed to find a lasting market in The Netherlands, but appearing first in the 1680s did affect English pipe shapes profoundly. However, in anticipation it may be noted here that as a result of his Bristol research this writer has found what he believes is a more plausible origin for Oswald's type 9 bowls without invoking foreign influence (see 6: VII(a)(2)).

At present there are only two Dutch pipemaking firms in The Netherlands - those of Goedewaagen (Koninklijke Hollandse Pijpen en Aardwerkfabriek), whose family appears to have been in the pipemaking business since 1779 (Helbers and Goedewaagen 1942: 156), and Van der Want (Zenith Plateelbakkerij en Pijpenfabriek), whose family has manufactured pipes since 1749 (Tempelman and Roest 1967). Both these firms are in Gouda, and both now also produce pottery, as their names show. Goedewaagen produces earthenware and Van der Want, delftware. The Van der Want pipe-manufacturing process is described in 2: II, also in I. Walker 1971b.

Both firms still export pipes: Goedewaagen pipes were being sold at Mystic Seaport, Connecticut in 1964 (I. Walker 1966c), and are at present used, albeit incongruously, by the Fortress of Louisbourg in its mid-C18 restoration of that site in Nova Scotia (e.g. fig 5 of back page of National Historic Parks News 2, February 1970); while Van der Want pipes could be purchased in Toronto in 1965 and a mould at the firm's factory seen during the writer's visit there in 1969 was for pipes with an Indian's head for the bowl and WILLIAMSBURG on the stem, presumably for sale at that restoration.

SECTION III:
GERMANY

In Germany, tobacco was introduced by Spanish soldiers as early as the reign of the emperor Charles V, 1519-56 (quoted in MacInnes 1926: 20). Smoking was known in the Rhineland by 1587 (Corti 1930: 100, 1931 ed) - though perhaps of primitive cigars, not pipes, as it is Spanish soldiers who are mentioned - and in Hamburg by the end of the C16 (Laufer 1924b: 58). However, two German travellers in England at the end of the C16, Paul Hentzner in 1598 and Thomas Platter the younger in 1599, describe smoking in terms which suggest they at any rate were unfamiliar with the habit at that time (Dickson 1954: 194-6). Pritchett (1890: 12-13), though he can hardly be considered a scholarly source, illustrates a German woodcut dated 1616 depicting a large long-stemmed pipe being smoked. Pipes were being made in Cologne - apparently by refugee Englishmen - by 1628, according to Brongers (1964b: 35; cf Schmitt 1957: 159) and pipemaking there was condemned by imperial decree in 1649 (Corti 1930: 110-1, 1931 ed). Cologne had been a pottery centre, manufacturing salt-glazed stoneware, from the C15 (Reineking-von Bolk (ed) 1971: 35) and was in the C18 to become a major centre of the tobacco and snuff trade (Corti 1930: 188, 1931 ed).

The origins of the German pipemaking industry are obscure, but it appears to have started about the same time and for the same reasons as did the industry in The Netherlands. By the middle of the C17 pipe-smoking amongst the working classes in Germany was universal, having been spread by Dutch and English mercenaries during the Thirty Years' War, 1618-48. (Laufer (1924b: 58) says that the early German _Toback_ and the dialect _Tuback_ for tobacco and the Low German _smoken_ for to smoke show this English influence; but he appears to be in error here, for the spellings for the word for tobacco - the modern German is _Tabak_ - presumably represent the general spread of the plant and its use in German-speaking areas without any specific implication of English assistance, while _smoken_ must be regarded as the Low German (and also Dutch) cognate of the modern German _schmauchen_ to smoke, a word noted occuring as early as 1253 in the Grimm brothers' _Deutches Worterbuch_ and therefore of good Germanic origins.) Sprengel, writing in the mid-C18 and referring to pipemaking in Brandenburg, says that the technical terms used probably came from The Netherlands as the trade spread from there to Cologne and thence to Brandenburg (Sprengel 1772: 289-90); some of the technical terms which he records (see 2: IV) are certainly Dutch in origin. Hendrickx, who annoyingly does not cite his sources but seems to have access to material at present unknown to this writer, indicates (1963: 157) that Cologne, already a pottery centre, soon became an important pipe centre as pipemaking spread up the Rhine from The Netherlands; later (p.158), Hendrickx indicates the stoneware centre of Raeren, west of Cologne and now just inside Belgium, had also been an early pipemaking centre. The industry at Höhr and Grenzhausen in the Westerwald he implies started with this same spread of pipemaking, as did the industry at Grossalmerode near Cassel in northern Hesse, in central Germany, some 90 miles NW of the Westerwald.

However, it was not until the beginning of the C18 that Frederick I of Prussia, 1701-14, made smoking socially respectable with his smoking parties. His pipes came either from The Netherlands or Cologne. Frederick's son, Frederick William I, 1714-40, was much less formal and used - sometimes at least - the lower-class, short-stemmed, Dutch pipes (Corti 1930: 188-94, figs 42 and 44, 1931 ed; Heimann 1960: 63 and illus.; Hendrickx 1963: 158).

As already noted, Prussia placed a tax on imported pipes in 1754 and shortly afterwards forbade the importation of any pipes. This boosted German pipe manufacture and the new industries at Stettin and Konigsberg at the expense of Dutch pipes, and probably as a result of this, pipe manufacture in Germany spread. According to Sprengel (1772: 301-2), whose knowledge may not be entirely accurate and appears to be restricted to the Brandenburg area, and who gives this particular information in an addition to his article at the end, the first clay pipe factory in Berlin was established in 1753 by a sculptor named Glume and the second in 1755 by a merchant named Raue - he notes this latter individual had recently died. At this time there were two other pipe-factories in this area of Germany, one near Frankfurt-an-der-Oder and the other on a manorial estate in Altmark, immediately west of the Elbe; and also a number of makers in small towns in Brandenburg all of whom, however, made short clay pipes. At least in the four factories noted the clay was obtained from the Magdeburg area. However, there is a reference as early as 1634 to a Scarborough vessel, the *Delight*, taking "15 loads Tobacco pipe earth" from Boston to Danzig (Boston port books, reference in P.K. Wells files), which suggests the possibility of early clay pipe manufacture in Central Europe.

In 1784 a factory was founded at Hubertusburg, between Meissen and Leipzig, which turned out pipes said to be almost as good as English ones (and therefore presumably "clay" pipes - that is the white ball-clay pipes, as opposed to porcelain pipes). Other factories were established at Gotha, farther west (H.E. Smith 1860: 212, quoting Marryat's *History of Pottery and Porcelain* p.122). (Hendrickx (1963: 158) appears to have a different version of this information, saying that in 1784 a Count Marcolini erected a factory at "Hurtertsberg" for manufacturing porcelain pipes and that another appeared at Gotha at a later date - in fact, according to Honey (1952: 318), a *faience*-factory was founded at Hubertusburg in 1770 and this subsequently did come under the direction of Count Marcolini, the Elector of Saxony's minister responsible 1774-1814 for the Meissen porcelain factory). That conventional clay pipes were still being made at Gotha in the second half of the C19 is suggested by an imitation of a Peter Dorni-style pipe (see p. 296 below) with I.G. PRENSE and IN GOTHA on it from a site near Albany, New York state (McCashion *in litt.* 9 November 1971; seen by writer April 1973), suggesting a Gotha maker was pirating the products of J. and G. Prince of Gouda who ironically were plagiarizing Dorni's products.

In the late 1780s the unpublished records of the Gouda pipemakers' guild translated in Ottawa indicate that Cologne was still manufacturng clay pipes, and was complaining about taxes levied in The Netherlands on pipes shipped down the Rhine and destined for Denmark and Holstein (as is noted below, a Cologne-marked pipe is recorded from an American site of the 1850s and 1860s, presumably indicating that the industry was still alive there then). The same documents also note that in the late 1780s the Stettin industry was especially noted for supplying pipes to Hamburg, Holstein, Denmark, Mecklenburg, the whole Baltic area, and as far away as Russia, and in doing so was plagiarizing Gouda marks, particularly the famous Het Lam onder den Boom (The Lamb under the Tree), whose then owner specialized in top-quality pipes and supplied these areas (see preceding section). At this time and indeed as early as 1766 the Elector of Trier was also complaining about taxes levied on pipes on transit down the Rhine from his domain - as the Electorate of Trier included Coblenz, Andernach, and part of the Westerwald, the pipes were probably from these centres (see below). Gouda pipemakers claimed that these makers, those in Stettin, and others in "the North", were plagiarizing Gouda marks.

Pipemaking is one of the trades recorded in 1811 in Hildesheim, SE of Hanover (Kaufold 1968: 18-20), and Sprengel writing some 40 years earlier noted (1772: 290) that there were pipeclay deposits at Hildesheim.

As noted earlier, Hendrickx notes the early appearance of pipemaking in the Cassel region of central Germany. He also notes, again with no reference, that in 1775 a certain Nolde (no first name given) who was a pipemaker at Münden near Cassel made a "special kiln" the design of which he kept secret, but that jealous competitors broke it open to see how it was constructed and that as a result pipe-manufacture spread elsewhere in Münden and to Uslar, Holzminden, and Hameln (Hamelin), all to the north and farther down the Weser (Hendrickx 1963: 157).

Porcelain bowls, which became the traditional German manner of smoking, have been discussed earlier (see 1: VII(g)). They appear to have been first produced at Meissen, with the first successful production of true porcelain in Europe there ca.1709-10. The traditional porcelain bowl shape derives from the "capless acorn" form of Dutch bowl which appears to have evolved in The Netherlands at the end of the C17 and became the basic Dutch bowl form until at least the later C19. By the 1870s porcelain bowls could be called "the favourite of the German peasant" suggesting they were probably the standard lower-class form of pipe in Germany.

One of the centres benefiting from the restrictions placed on Dutch pipes by the Prussians was Höhr - now Höhr-Grenzhausen - near Coblenz, in the Westerwald. This area had been famous from the early C17 for its salt-glazed stoneware, Höhr being settled ca.1590 by refugee potters from Seigburg, and nearby Grenzhausen slightly earlier by potters from Raeren, Seigburg and Raeren being two famous late-medieval pottery centres in the Cologne-Aachen area farther north affected by the prolonged warfare from 1581 in the Rhineland (Klein 1955: 25-6; I. Noël Hume 1958; 1967; Reineking-von Bock (ed) 1971: 44; Thwaite 1973: 258). In the C18, however, the Westerwald stoneware industry was declining (Solon 1892: II, 86-92; Cox 1944: I, 414-8; Penkala 1951a: 326), and it is perhaps for this reason that the pipemaking industry expands. According to Dienemann and Burre (1928: 194) the pottery industry of the area goes back to Roman and possibly prehistoric times, and clay pipe manufacture started following the dislocations of the Thirty Years' War, which ended in 1848 (cf Schmitt 1957: 157).

It was from here that the pipemaking industry reached Andenne in Belgium. According to Javaux (1935: 10-16) the earliest pipemaker at Andenne was a Peter Hurter from Höhr who settled there in 1768 and whose family continued in the business until 1929. Javaux identified many of the terms used in the trade at Andenne (described in the chapter on pipemaking) with words used by the German pipemakers at Höhr - rolle (*Rolle* in German), *schinque* (*der Schenker* in German), *schmoud* and *schmoudrage* (*schmoudern* in German), *schtoup* (*der Stöpfer*), and *trameuse* (*die Trümmerin*) for example. These terms Javaux also found used at Mons and at Chokier, near Liège - at Chokier the first pipemaker was again a native of Höhr who arrived in 1818.

However, Javaux's finding of these words at Höhr does not necessarily mean they are originally German. In fact all the terms noted by Javaux are almost certainly of Dutch and ultimately English origin. Further, though the technique of hand-production in the Westerwald is now almost dead, rolls were made by using both hands on the one piece of clay, as is done in The Netherlands to the present day. Again, the manufacturers of German descent at Andenne used makers' marks which included (Javaux 1935: 12, 13) numbers surmounted by a crown, a very distinctive type of Dutch mark (Helbers and Goedewaagen 1942: *passim*), though it is possible that this is no more than confirmation that Höhr pipemakers had plagiarized Gouda marks - Gouda makers alleged that even the Gouda arms was copied (Helbers and Goedewaagen 1942: 19). Until the origins of the Westerwald pipe industry have been traced, little can be said with certainty, but it seems almost certain it must have been founded by Dutchmen - who appear to have gone as far afield as the south of France and Sweden making pipes - perhaps, as Dienemann and Burre suggest, in the middle of the C17.

Though now joined, Höhr-Grenzausen was formerly two separate communities. In fact, they were in two different political regions prior to 1803 when the area became part of the Duchy of Nassau (Solon 1892: II, 78). Höhr prior to this had belonged to the Electorate of Trier, Grenzhausen to the County of Wied (Klein 1955: 26) - *Grenze* means boundary. Höhr, as already noted, was settled by potters from Siegburg, and it appears to have become the major pipe-making centre, though pipes are now no longer made there. Among the Gouda pipemaker's guild records translated in Ottawa is a series of exchanges with the Elector of Trier who was protesting the heavy taxes put on Höhr pipes being shipped through The Netherlands for the Hamburg and Baltic markets. Their effect on "two hundred Trier households" was noted in 1789, indicating that pipemaking was a major industry. The clay used came from Mogendorf, ca.6 miles NE of Höhr-Grenzhausen - the Gouda guild said they obtained some through middlemen in Cologne, but it was of poor quality, was little used, and could easily be done without.

Of particular interest is a list of names of pipes being made for export at Höhr in 1789. The following types were being sold in The Netherlands:

Iüdger,
Indger,
Halblangen,
Meusger,
Sie reibger,
Kleijbladzes,
fisch Juder,
Persijes.

The types exported through The Netherlands to "northern countries" - that is, Hamburg and the Baltic, were as follows:

grosse moschlen, grosse buckel,
Kleine moschlen, Kleine buckel.

The meanings of these terms is obscure. lüdger looks as though it might have connection with "Jew"; and Halblangen can be translated as "half-long" or "demi-long", terms which would fit other known pipe terminology. Kleijbladzes and Persijes both have a Dutch look about them for "ij" for "y" (or "y" itself, for that matter) is not used in native German words; the latter looks as though it might be connected with "Persian". Fisch Juder, literally "fish-Jew", is a contemptuous term for a fishmonger - possibly this particular type of pipe was or had been associated with fishmongers. If moschlen is the same as Muscheln it would mean "mussel shells", which could conceivably relate to shell-patterned decoration on the bowl - such decoration is known on C19 English pipes. Buckel means "lump" or "knob"; C19 English pipes are also known to have had bowls with knobby decoration. All these types were apparently fairly short stemmed, or else came in both short- and long-stemmed varieties, for after giving costs including straw, packing, barrels, and freight for these types to their two destinations costs were also given for shipping long pipes there, and 20-Zoll pipes to The Netherlands and 25- and 30-Zoll (respectively ca.20 5/8, 25 3/4, and 31 English ins - see Appendix III) pipes to the north are noted with prices vastly increased to those quoted for the short varieties.

Pholien (1906: 147) notes a pipemaker at Andernach and another at Kobern, both near Coblenz and not far from the Westerwald, in 1806. The Andernach maker, a Wingerter, is probably of the same family as the Wingender (allowing a slight name change) from Höhr who set up business at Chokier near Liège in 1818 because he found unfavourable tariffs were keeping his pipes out of The Netherlands (Pholien 1906: 144-5), suggesting the duties imposed and protested in 1789 still stood. The name of the guild secretary at Höhr who listed the pipe types noted above in 1789 is given as Peter Ringender - this is probably a mis-copying of Wingender or Wingerder. Typically C19 pipes marked WINGENDER/FRERES/CHOKIER are in the Musée du Tabac at Bergerac, the Museum voor Folklore at Antwerp, and the Musée de la Vie Wallonne at Liège. The great-grandson of the first Wingender of the Chokier firm was running the business when Pholien was writing, and according to M.-G. Lefrancq (in litt. 9 October 1969) the firm continued until after WW I; but the family continued at Höhr also, for a Wingender from there exhibited pipes in the 1851 London Exhibition (Official Descriptive and Illustrated Catalogue III, 1132).

The firm of Müllenbach and Thewald of Höhr was founded in 1830 and stopped making pipes in 1930, though it still continues in the pottery business (Müllenbach and Thewald in litt. 30 January 1968). They too exhibited pipes at the 1851 London Exhibition (Official...Catalogue loc. cit.). Pipes with their name or initials on them have been found in New York state (Gifford 1940: 123 fig 27); New Jersey (Lenik 1967a: 45; 1969: 35; Skinner in litt. 13 June 1972); South Carolina (cards on file at Institute of Archeology and Anthropology, University of South Carolina, Columbia, seen October 1970); and New Mexico (R.L. Wilson 1966: 47, fig 4,J).

IOH ANN
A stem with ES.S TEI encircling it and lying between two bands of
NE.B ACH
IN.H ORN
decoration comprising crosses and dots, with lines running parallel to the stem at at least the top end of the fragment (the gap between the two halves of the words marks the mould line) came from an C18 site in Westmoreland County, Virginia (Miss V. Mitchell in litt. 30 July 1972). While it seems very unlikely such a fragment would date to that period, being in all probability C19, this stem would suggest, assuming the place involved is indeed Horn and the word is not just an indistinct imprint of Höhr, a German pipemaking centre not apparently hitherto known from the literature. The only Horn known to this writer in Germany is a small town ca.13 miles NE of Paderhorn in north-central West Germany.

According to Sackett (1943: 77) a stem bearing the name of the city of Cologne - presumably, therefore, marked "Köln" - was found at Fort Ridgely, Minnesota, which was occupied between 1853 and 1861 and again between 1865 and 1867. Stem fragments marked apparently GOEBELL/FRIEDRICH and MEISTR-/IHGET- and presumably German have been found in South Carolina (cards on file at Institute of Archeology and Anthropology, University of South Carolina seen October 1970).

There are at least three firms still making pipes in the Westerwald - Wilhelm Klauer Söhne K.G. of Baumbach (founded 1890), Wilhelm Albrecht Simonis of Hilgert, and the latter's brother Richard Simonis also in Hilgert, in that order of size. Klauer produces 3,000,000 pipes a year, firing every day in alternate kilns. The firm of Gebrüder Spang in Baumbach gets unfired pipes from Richard Simonis and fires them. FIG 120 shows a case of fine Klauer products, probably of the beginning of the C20. (Hilgert, a small village, is ca.2 miles NE of Höhr-Grenzhausen; Baumbach, a small town, is ca.1-1/2 miles beyond Hilgert.) Pipes from at least one of these firms were being sold at least as late as 1965 in the United States (I. Walker 1966a: 86, 87 fig 1a and 1b; 1967c: 193, fig 9). To judge from the examples shown in catalogues of some of these firms which probably date to ca.1900 it was not just Peter Dorni pipes which were being plagiarized (cf Gifford loc. cit.; Omwake 1961) during the later C19 - the name of the Glasgow firm of Davidson also appeared on Westerwald-made pipes.

A hint of the unstudied history of pipe manufacture in Central Europe comes from pipes found at Bethabara, North Carolina, a settlement established in 1753 by members of the Unitas Fratrum or "Moravian" church which had sprung from the teachings of Jan Hus and spread through Bohemia, Moravia, and the adjacent areas of Germany and Poland. At Bethabara, pipes dating from 1755 to 1771 and from 1786 to the beginning of the C19 were found in excavated kiln waster-dumps (see 2: VIII). In method of firing these pipes correspond exactly with ones being made in Poland in the later C17, and in shape the Polish pipes are also similar; they are likewise made of ordinary potting clay instead of ballclay, and are of the "two-piece" variety - that is, they are designed to take a reed or similar stem and are thus made in the form of a bowl and stub stem. Their manufacture at Salem, near Bethabara, continued at the pottery there through the C19 certainly as late as 1882 (Bivins 1972: 111 fig 46) and no doubt until the pottery closed when the last potter there died in 1902. Journeymen potters continued the tradition, however, producing a pipe known as the Moon Shine pipe (Albright 1958: 24); in 1967 a former colleague of the writer obtained a non-anthropomorphic bowl apparently of fire- or brickclay in Salem, and anthropomorphic pipes with a turbaned head are still being made from an old Salem mould (I. Walker 1971a: 28).

According to Cassidy (1895: 22), who is certainly not a scholarly source, a Dr Vikarius two centuries ago had accidentally invented the "jointed pipe-stem" so characteristic of German pipes: presumably this is a reference to a story involving some alleged invention ca.1700 of the idea of a separate bowl and stem for a pipe, but the story is unknown to this writer (cf 1: VII(g)).

In a preliminary overview of the origins of the Bethabara pipes this writer (I. Walker 1971a: 27) suggested that the stub-stemmed earthenware pipe originated in Central Europe in response to the needs of English and Dutch mercenaries during the Thirty Years' War, 1618-48, who unable to obtain the white clay pipes to which they were accustomed, were forced to have crude earthenware pipes made for them, but subsequently-available evidence now suggests another origin for these pipes. In a study of Polish pipes, Żurowski (1951) points out that there are two distinct types of clay pipes found in Poland: the conventional long-stemmed ballclay pipe, which in Poland appear to be either Dutch imports or copies of them, and the bowl and stub-stem earthenware type. The former pipe is called in Polish _fajka_, which derives from the German _Pfeife_, pipe, a term for a smoking-pipe represented in closely analagous forms throughout western European languages and presumably originating in the English term pipe; the stub-stemmed earthenware pipe, however, is called a _lulka_, a word which is derived from the Persian word _lule_ meaning inter alia a tobacco-pipe, in which sense it also appears in Turkish. In view of the extents of the Polish and Turkish empires in the C16 and C17, when they had hundreds of miles of common border, it would not be surprising to have Turkish influence entering Poland from the south just as the _fajka_ obviously came into Poland from the west through Germany; and it now seems highly likely that the Central European stub-stemmed earthenware pipe derives from Turkish forms (cf examples in Raban 1971: 151-2, 154, 152 illus. upper centre left; also in Brongniart 1844: 190, 191-2, 189 fig 79, G and F, 1854 ed) - A. Dunhill (1924: 235, 237-8, figs 226-9) attributes the similarity in bowl-forms between the Turkish _chibouk_ and on the one hand the typical meerschaum pipe bowl-shape and on the other the typical wooden bowl-forms of Russia, Finland, and Siberia to this same Turkish contact through the Balkans and southern Russia.

Unfortunately, very little is known to this writer on Turkish pipes, but as early as 1610 an Englishman referred to the Turks smoking tobacco "through reeds that have ioyned unto them great heads of wood to containe it [tobacco]: I doubt not but lately taught them, as brought them by the English:..." (quoted in Laufer 1924b: 62), suggesting the English had recently introduced smoking into Turkey and indicating two-piece pipes were in use there from the beginning. Initially, drastic punishment, including execution, was meted out to smokers in Turkey but from the middle of the C17 prohibitions were relaxed and according to Laufer (1924b: 63) "smoking both from the dry pipe and the water-pipe became a general custom". Laufer also quotes (loc. cit.) a traveller in 1675 observing that the finest pipe-heads in Turkey were sold at Lüleburgaz in modern European Turkey, again indicating the use of bipartite pipes; and the 1759-65 edition of Savary des Bruslons's Dictionnaire universel..., where the entry on pipes is probably basically early C18 in date (see p. 54 n. 16), says the Turks used pipes three or four ft long with a reed or wooden stem and an earthenware bowl which was removed after smoking (Savary des Bruslons 1759-65 ed: IV, col. 200) (this is repeated in the 1762-64 Dictionnaire domestique portatif,... (Roux et al 1762-64: II, 357)). The available evidence would suggest, therefore, that any time from the early C17 the lulka form of pipe could have been finding its way into Poland. Examination of Central and Eastern European museum collections for both types of pipes is much to be desired, for Żurowski's early article can now be seen to have much wrong or suspect dating of material.

A survey of the evidence at present available for the spread in the United States of the distinctively American stub-stemmed pipe industry is given in Section VIII below (see also now I. Walker 1975a).

SECTION IV:
BELGIUM AND LUXEMBOURG

The earliest known pipemakers in what is now Belgium are recorded in 1639. One of these, Denis Derasse, apparently had a chequered and largely unsuccessful career as a pipemaker in Tournai. Soon after setting up business he took on two partners, and one of these took over the enterprise in 1642. About that time the firm received a three-year monopoly to be sole manufacturers of pipes in the city, but even then the business was not a success, and it soon closed. In 1671, Derasse, now 70 years old, opened his business again with another partner, but ran into problems with the potters at Tournai, and was unable to fire his own pipes. He obtained another three-year monopoly which was extended in 1674 and again in 1677, and in 1675 successfully sought a ban on the entry of pipes into Tournai from other centres; but the business still failed to prosper, the number of workers employed having fallen to two or three by 1677 from nine, including four moulders, in 1671. A condition of the renewal of his monopoly in 1677 was that he take more workmen, but the monopoly is not renewed in 1680 and Derasse and his business disappear from the records. Derasse and all his partners have French names (Soil 1886: 189-92; Pholien 1906: 141). The other pipemaker first recorded in 1639 is Jean-Baptiste Chabotteau - again a French name - who is recorded by M.-G. Lefrancq (in litt. 9 October 1969) at Namur for the years 1639 to 1641. Nothing further appears to be known about him - indeed he is the only pipemaker recorded by Lefrancq at Namur. Another early Belgian pipemaker is Jan Trademus, who according to family records is believed to have been the first Ghent pipemaker, starting there a little before 1665 (Ons Heem 1963: 179 s.v. (Gent) - Pijpenbakker).

In 1691, a Jean Gravier came from Valenciennes (modern France, département of Nord) to Tournai and obtained a monopoly to make pipes. He requested from the city a free house, 200 florins a year (the allowance given him at Valenciennes), exemption from taxes, and a monopoly on production; and in return promised to make "as many pipes in a day as the town can use in a week". He was given these privileges for five years, a period almost immediately increased to ten. Two years later he opened a marbled tile and Alicanti soap factory, which may indicate that pipes were still not popular enough for a maker to earn his living solely by producing them; but among his occupations he must have been making a good profit, for in 1695 the terms of his monopoly were changed and instead of his being paid 200 florins annually he now had to pay a tax of 425 florins. In 1699 Gravier, having met with some disfavour, had to retire to Ghent, and his factory was continued successively by his wife (who stopped the tile manufacture), one of his workers, and finally in 1706 by the son Jacques, who reintroduced tile manufacture but with little success and had left Tournai by January 1710.

The City Council, who apparently were anxious to see the pipe trade successfully established in Tournai, asked in 1711 or 1712 a Dutchman Dirick-Marlinck, to set up the business, making Dutch-style pipes, but he was as unsuccessful as those makers previous to him, the war in the Low Countries preventing him getting his clay, and at one stage he had to sell his clothes to live. He too went in for tile manufacture in an attempt to earn a living, but after 1714 he is not heard of again (Soil 1886: 192-8; Pholien 1906: 141-2).

In 1714 a maker with a French name, Nicolas Pinçon or Pinchon, set up business in Tournai, claiming the following year that more than 20 or 30 families would be supported by the workers he was going to employ. In 1716 he had six workers and was building another kiln, and in 1717 he had 15 workmen and his pipes were being sold in the nearby towns of Lille, Douai, and Valenciennes. By this time he had built three new kilns, but high import duties levied on his pipes by the French and low import dues on foreign pipes in the Low Countries were making his business difficult. In 1722 he wanted assistance from the Tournai council to build a kiln to make "porcelain pipes", but the city fathers offered him no encouragement, so he went to Mons (also in modern Belgium) where, apparently, the Council had been requesting him to set up business for a long time. After Pinçon's departure a German pipemaker who had been working at Raismes on the NW outskirts of Valenciennes, Robert Stevels, asked in 1725 for permission to set up in Tournai. He was allowed to do so on a trial basis, but nothing more is recorded of him. Pinçon's wife continued the Tournai business with several workmen until 1727, when his son-in-law Michel-Joseph Petit, who had already established his own business in Tournai, took it over, and starting with five or six workmen, ran it until his death in 1779. In 1749 he also started tile-making. His son Antoine-Joseph, was set up in business in Mons in 1793. A son-in-law of Charles-Joseph, a M Renard-Petit, re-established the Tournai industry in 1817.

Charles-Joseph died in 1858, and was succeeded at the Mons factory by his son Jules. In 1868 a nephew of Charles-Joseph, Firmin Petit, succeeded, but in 1870 the factory closed. The period of greatest prosperity for the firm was under Charles-Joseph in the middle of the century: in 1847 sixty workers were employed, in 1855, seventy. Medals and honourable mentions were obtained at exhibitions at Tournai in 1824, Haarlem in 1828, Brussels in 1835 when the jury said his pipes were "as good as those of Gouda", and in 1847 when his sample of 191 pipes included two a metre (over 39 ins) long, and Mons in 1851. The factory used from 1804 until 1870 was at what is now 22 rue Antoine Clesse until 1965 - remains of the kiln can still be seen in the basement of number 24. The demolition of number 22 revealed vast quantities of pipe-fragments. The marks "Petit/à Mons/Brevete" or C.J. PETIT/FABT/MONS occur on the stem; a circular heel-mark with .C.PETIT round the edge also occurs (Soil 1886: 198-203; Pholien 1906: 142-4; Lefrancq 1970a; 1970b, which last shows the Petit property on rue Antoine Clesse, a picture of Charles-Joseph Petit, and examples of his pipes and their markings).

By ca.1830, pipemakers had set up business all over Belgium - though M.-G. Lefrancq's work (in litt. 9 October 1969) makes it clear that Andenne and its suburb Andenelle remained by far the largest production centre - but many of the pipes smoked in Belgium must still have been imported, for in four years in the 1860s an average of nearly 4,000,000 pipes, two-thirds from The Netherlands and the rest from France, were being imported a year (Pholien 1906: 146). Belgian pipes were, however, themselves exported: in 1860 ca.825,000 were exported, about half to The Netherlands and the rest divided between England and the Indies (Lefrancq 1970a). Figures in Pholien (*loc. cit.*) for the value of Belgian pipes exported in the years 1834, 1851, 1855, and 1860 suggest the middle 1850s saw the height of the export industry.

The best clays were noted as those from Andenne, Germany, and England, and these were mixed in proportions according to the amount of sand they contained. Tournai and Mons pipes were made of Hautrache and Andenne clay mixed. Duhamel du Monceau notes (1771: 7) that it was alleged that Gouda makers used clay from near Antwerp, but he doubted this as his own source for information on the Gouda industry indicated the clay used came from near Cologne in Germany and above all from near Liège - presumably Andenne. The reference to a clay-deposit near Antwerp is interesting, however, for there is a 1644 reference to clay from Roosendaal in The Netherlands, ca.25 miles north of Antwerp (Douwes 1964: 365) and according to M.-G. Lefrancq (*in litt.* 9 October 1969) a pipemaker named Petri still works at Schoten, ca.4-1/2 miles NE of Antwerp (see also 2: IX).

Pipemaking was established in Courtrai in the second half of the C18, and the De Bevere family made pipes there from the early C19 until 1950, producing ca.30,000 pipes a week as late as ca.1930. When the business closed, one of the workmen, Robrecht Laporte, who had been with the business from 1913 and whose father had worked there before him, bought some of the moulds and equipment and set up business on his own, moving to Kuurne ca.2 miles NE of Courtrai in 1954. His son-in-law, Frans van Overschelde, took over the business in 1965 and in 1971 it was still producing pipes and had three employees (Van Hoonacker 1971; see also 2: III).

The first pipemakers recorded at Mons came from Tournai in the C18 and presumably used the French technical terms noted by Duhamel du Monceau as being used there. If so, however, these terms did not survive, probably because the dominant element among later pipemakers was German (Javaux 1935: 10; cf Jean-Léo 1971: 8 n.1). In 1846 another native of Höhr, J.-J. Knoedgen, started making pipes at Bree, Limbourg province, near the Dutch border, and the same person, or family, seems to have been working in Liège in 1857, probably continuing the business of P. Regout of Maastricht who had obtained permission to establish a pipe-manufactory at Liège in 1770 (Pholien 1906: 144). Pipes marked "Knoedgen/à BREE" are in the collection of the Museum voor Folklore, Antwerp - one example bore a transfer-printed portrait of General Botha, which indicates the firm was still in existence ca.1900 though Pholien makes no reference to the firm in the present tense.

Brongers (1964b: 31) mentions English pipemakers settling in various centres now in northern and central Belgium - Flanders, Limbourg, Namur, and Liège provinces (including "Andêmes" which must be an error for Andenne) - at the beginning of the C17 but nothing more is said about them. In view of the pronounced German influx to the area later, and the lack of success of the Tournai industry in the C17 and C18, it seems likely that there were no previous major production centres. Probably the minor needs of present-day Belgium were largely supplied in earlier times from Gouda, and a story recounted about a successful Dutch effort to close a newly-established pipe factory near Ostend bears this out. The Dutch in 1765 purposely wrecked a large ship loaded with pipes near Ostend: under port law the cargo had to be taken and sold in the city, naturally at a very low price, and this forced the new factory to close (H.E. Smith 1860: 212-3, quoting Macpherson's Annals of Commerce).

It is probably significant that the Andenne industry began when the Gouda industry was in decline and its exports to places outside The Netherlands falling. According to one of Duhamel du Monceau's sources (1771: 7, 8) the Dutch used Andenne clay, so the decline in the Gouda industry would have been felt at Andenne. This would have created the need (from the point of view of the local economy) and the opportunity for a replacement industry, and it is at this moment - 1768 - that the first Höhr pipemaker appears at Andenne.

However, Andenne export of clay still continued, for ca.1783 a Charles Wouters, brother of an Andenne delftmaker, lived in Gouda and acted as an agent for Andenne clay (cf Duhamel du Monceau 1771: 7). At that time delft factories in Gouda and Delft used large quantities of Andenne clay, and at the beginning of the C19 two pipemaking concerns in Gouda, Stomman and Prince, used enormous amounts (Javaux 1935: 4 and n.3). Javaux also noted the Dutch were still using Andenne clays when he was writing, and a handwritten note on Javaux's remarks in this writer's copy of Javaux noted Gambier of Givet in France also used Andenne clay.

The Gouda pipemaking guild records contain two letters from one Pieter Lansheer in 1786 who was then at Huy, ca.7 miles down the Meuse from Andenne and ca.19 miles from Namur. Lansheer claimed that all the clay being mined in the area between Huy and Namur was being dug by small speculators and was extremely bad in quality, being full of lime. It shrank drastically on firing and turned reddish, though some of it had the appearance of excellent quality. The only good clay, Lansheer averred, was that dug by a certain Walters or Woters, who was mining it from more than 400 feet below surface and whose brother lived in Huy. An undated copy of a reply sent by the guild to Lansheer is courteous if wary, but said it looked forward to receivng samples of Woters's clay and that if it proved to be as good as claimed it would be ordered. No further references to this matter are recorded, but in view of Javaux's remarks it seems likely this clay was found acceptable and Woters's brother, perhaps the one at Huy, went to Gouda to act as his agent. Two Joseph Wouterses, pipemakers, are known from Andenne at this period, the first being noted 1783-86 and the second 1794-1805 (Ons Heem 1963: 164). (There has probably been a long history of pottery manufacture at Andenne and at neighbouring places in that area of the Meuse valley - there was a major industry from the end of the C11 to the second half of the C14, initially at Andenne and subsequently also at Namur, Amay near Huy, and probably Liège whose products have been found in northern and eastern Belgium, The Netherlands, and in one instance in England (Borremans and Warginaire 1966: 79-88, fig 34, and passim).)

Javaux notes (1935: 11) that the Andenne pipe industry was prosperous at the beginning of the C19, that it then declined, but that it reached its height between 1855 and 1875. Since Javaux's time, however, the Andenne industry has declined to the point where it now makes pipes only for shooting galleries (Musée Communal de la Céramique, Andenne, in litt. 5 February 1968; cf Neve 1960). (The last of the original Heurter family which had arrived in Andenne in 1768 gave up business in 1929 (Javaux 1935: 16) but at least as late as 1961 one of the makers in the family still lived in the town (quoted by Musée Communal de la Céramique, Andenne 1968). The factory of the last Heurter was still in existence in 1960, though being used for other business (Neve 1960: 28).)

Pipes marked "Heurter/Andenne/Depose" are in the collection of the Musée de la Vie Wallonne, Liège, in which collection there are also pipes marked "Daniel/a Andenne/...". The Museum voor Folklore at Antwerp has pipes marked "V. Leblanc/Andenne" and "R.[or H.?]/Lesuisse/à Andenne/Deposé". The firm of Leblanc was in existence by the 1880s and became Leblanc-Lesuisse when the son-in-law of the original owner succeeded. About 1900 the firm's mould-maker and -repairer, Daniel Verheylewegen, took charge, though he subsequently specialized in manufacturing asbestos and wooden pipes. Verheylewegen used the mark "Daniel" on his products (Javaux 1935: 16). A pipe marked "D. BARTH/ANDENNE/Belgique" in the Musée Communal de la Céramique, Andenne, is the product of Desiré Barth, who commenced pipemaking in the rue des Pipiers, Andennelle, a suburb of Andenne, in 1855. This business ceased in the later 1880s but in its time was the most important of the Andenne pipe factories, producing almost 1,000 gross a week in 1862 and having a staff of 120-130 in 1870, 40 or 50 of whom were moulders. Barth at one time was sending thousands of gross of a short pipe with a bowl decorated in an overlapping fish-scale motif to California (Javaux 1935: 15). What may be this pattern occurs on a stem fragment immediately abutting the bowl which was found during excavations at the site of Sutter's Sawmill, scene of the California gold rush in 1847, though the excavator refers to the motif as a feather pattern (Fenenga 1947: 56, pl 1,7). Overlapping scale or shell motifs, however, are by no means uncommon on C19 pipes from several countries - Anna Viner of Bristol, for example, used this motif (see Appendix IX).

The firm of Wingender, established at Chokier near Liège in 1818, has already been noted when dealing with its German connections, as has the Bree firm of Knoedgen. The case with 87 pipes, four miniature pipes, and a cigar/cigarette holder which the firm exhibited at the Philiadelphia Exhibition in 1878 is on show in the Musée de la Vie Wallonne (FIG 124); when Pholien was writing, the firm had six kilns and ca.1,500 different models of pipes (Pholien 1906: 145). As previously noted, the firm was still in business after WW I. Knoedgen, on the evidence of the General Botha pipe mentioned previously, must have remained in business at least until ca.1900. Pholien (1906: 144) notes the firm of A. Trees of Liège, founded in 1820, was still making pipes in 1906 and was run by Antoine Trees, a direct descendant of the founder. At that time the firm employed 20 workers and had two kilns. It specialized in white-clay culottants (coloured - i.e. seasoned) pipes known as crème liégeoise and in enamelled pipes. A superbly-moulded bowl in the Musée de la Vie Wallonne depicts one J. D'Amorimont "Le bourmestre" (of Liège?) and bears the name of the Trees firm. It suggests the firm produced superior-quality pipes.

The firm of Nihoul, later Nihoul-Gaulier, worked at Nimy, a northern suburb of Mons. It was founded in 1841 and was still in business in 1898 (Pholien 1906: 145). Pholien implies it no longer existed by 1906, and local information (Musée Jean Lescarts, Mons, *in litt.* 17 January 1969) says the firm closed in 1900. Products of this firm, marked "Nihoul/à Nimy" sometimes with "Deposé" in a third line, are in the Museum voor Folklore, Antwerp; the Musée de la Vie Wallonne, Liège; and the Musée du Tabac, Bergerac, France. According to Lefrancq (1970a) Nihoul sometimes fraudulently used the mark "Nihoul/à Onnaing", presumably to try to steal sales from the pipemaking firm of Scouflaire at Onnaing in France (see following section). The Scouflaire firm was started in 1825 by two brothers from Nimy and their wives, one of whom was the daughter of a Nimy pipemaker; in 1834 they opened another factory back in Nimy, and there is a pipe marked "Scouflaire/à Nimy" in the Musée de la Vie Wallonne at Liège. Lafrancq notes the French buying Nimy pipes and the Belgians buying Onnaing pipes. A Jean-Charles-Joseph Nihoul-Polet, perhaps an earlier relative of the Nimy Nihoul and Nihoul-Gaulier family, was born in 1780 and was making pipes in Andenne by 1814. He died in 1845 (Javaux 1935: 14).

Pipemaking in Luxembourg probably came up the Moselle from the Westerwald area. In the Eiffel, the area north of the Moselle, pipemakers are noted at Zimmern in 1764 and at Orenhoven before the French Revolution. The three or four Zimmern makers made ca.4,000 gross pipes per annum, selling them in the surrounding areas and in France. The first pipemakers actually recorded within the Grand Duchy appear during the second quarter of the C19, at Grevenmacher and Remich, both on the Luxembourg side of the Moselle from Germany, and at Dalheim, a few miles west of Remich (Schmitt 1957: 159-60; Sprunck 1957: 68).

SECTION V:
FRANCE

Little definite appears to be known about the origins of the north French industry. In the 1590s French students at the University of Leyden in The Netherlands were smoking (Dickson 1954: 131), and as early as 1564 French settlers in Florida were apparently smoking the clay bowl and cane stem pipes of the natives there (Dickson 1954: 129, but see 130-1). In 1616 there is a reference to American Indians smoking "as is done in France" (Thwaites (ed) 1897: 117), and in 1629 the poet Saint-Amant wrote a sonnet in which he described himself seated "une pipe à la main" (part of the sonnet is quoted in Coolen 1970: 387 n.3; the entire poem is given in Bastien 1973: chapt 2, where the poet's name is spelt Saint-Aman). According to Lefrancq (1970a), the word pipe is first recorded in France in 1620;the Larousse Nouveau dictionnaire étmologique et historique (1964) gives 1626. The term may only have been introduced (presumably from the English) about this time, for the 1617 edition of Olivier de Serres's Théâtre d'agriculture talks of smoking tobacco with a cornet - the absence of this phrase from the 1600 edition of Serres suggests pipes were little known in France at that time (quoted in Franklin 1906: 571 and n.3).

By 1620, tobacco was being grown in Artois - approximately the present Pas-de-Calais département - and ca.1630-40 was being grown in the immediate area of Saint-Omer, which seems to be one of the earliest French pipemaking centres. There were 17 tobacco manufacturers at Saint-Omer in 1750; in 1785, 28 (Jakowsky 1956: 24; Coolen 1970: 388). Even to-day, the tobacco of the Artois area includes some of the best grown in France, and the neighbouring département of Nord is among the largest tobacco producers in France (Herment 1956: 112, 1965 ed).

Suitable clay for pipemaking was known in the area from the beginning of the C18, and Saint-Omer, Boulogne, Arras, Béthune, Fruges, all in the Pas-de-Calais, were pipemaking centres from early in that century (Coolen n.d.; followed by Jakowsky 1956: 23; cf Fresco-Corbu 1962: 1445, who appears to be using Jakowsky and/or Coolen extensively). By the end of the C17 pipemaking appears to have been widely spread in France (Jean-Léo 1971: 13-14, cf first page of illustrations in unpaginated section following p.55), but it was not until the second half of the C18 that a real French clay pipemaking industry arose, no doubt because snuff remained the only fashionable way of taking tobacco in France until the C19 (Franklin 1906: 667; Laufer 1924b: 54; Herment 1952: 16-17, 1965 ed; C.T. Shaw 1960: 287; Lotte 1963: 36, cf Laufer 1924a: 32; Mackenzie 1957: 163).

Recent preliminary documentary research on goods shipped to the French American colonies, specifically to Louisiana, from La Rochelle in the C18 indicates the vast majority of pipes shipped came from The Netherlands, though French-made pipes from Rouen, Strasbourg, and the Languedoc and Provence regions are also noted (Chapelot and Chapelot 1972: first, eighth, and tenth pages; Chapelot (ed) 1972: 89 pl 55 (caption on p.103)). Pipemaking in the C17 and C18 in these areas of France is known from other sources and noted below; the observation that Dutch pipes were commonly exported to the French possessions in the New World is supported by finds from excavations of Canadian and American C18 sites with French occupation, which indicate the French used Dutch, particularly Gouda, as well as English pipes (I. Walker 1971c: 117 and passim; cf Omwake 1965b: passim; Wylie 1968: 30 and passim; Davoud, now MacLean, 1969a: 3; 1969b: 4, 6, 18; MacLean 1971: 22, 24, and passim; Grange 1971: 560 and passim; Lafrenière and Gagnon 1971: 90 and photo 20; McClurkan 1972: 33).[8]

According to Coolen's recent study of pipemaking in Saint-Omer, the industry started there at the end of the C17, when Louis-Alphonse de Valbelle, who became bishop of Saint-Omer in 1684, founded the Hôpital général to group together the various existing houses of charity. Here girls were taught linen-making and boys to make fishing-lines and pipes. In 1712 one Adrien Cauche, a "master pipemaker", supplied necessary tools and clay from England, and was entrusted with the selling of the products. (The English appear to have blown hot and cold on the export of pipeclay in the C17 and C18 (see 2: IX); the use of English tools is interesting, but there is no evidence of English influence in Duhamel du Monceau's account of north French manufacture 59 years later.) In 1747 a certain Minet disposed of his pipemaking equipment to the Hôpital for the sum of 1,131 livres 14 sous, which suggests he disposed of an entire business. English clay was still used because of its whiteness, though local clay was also used. These attempts to set up the industry, however, do not appear to have lasted long; the business was restarted in 1792 but closed again 1796 because of lack of raw material and capital (Coolen 1970: 391 and 393).

Other sources indicate that Minet was probably working ca.1700 in Saint-Omer, to be followed by Charles-Marie Roussel (sometimes Houssel) who was working there before 1730 (cf Coolen 1970: 391). Until that date the clay from Menneville, just outside Desvres (Pas-de-Calais), had fired red, but Roussel perfected its firing in a manner (see 2:I) which resulted in a product as white as fired Andenne clay - in fact Andenne clay fired slightly red and Menneville clay pipes still fired slightly red inside to the bowl (Duhamel du Monceau 1771: 11-12, 9; Brongniart 1854 ed: II, 186, 187); Tomlinson (ed) 1852-4: II, 451; cf Jakowsky 1956: 25, 26).

The most famous Saint-Omer pipemaking firm was that of Fiolet. According to Jakowsky (1956: 25-6; also Jean-Léo 1971: 19, 30) the firm was founded in 1765 and closed in 1921. Coolen, however, notes the earliest-known Fiolet, Thomas, was working as a master-pipemaker at the end of the C17, and that his son, Charles-Dominique, was a master-pipemaker in 1713; he also notes the firm closed in 1919 (Coolen 1970: 393, 400). (There are differences between Coolen's and Jakowsky's accounts, but the former is probably more accurate; the 1765 reference in Jakowsky is to the building of the first workshops which may indicte the beginning of the family business as a major industry.)

Charles-Dominique Fiolet, son of the first Fiolet pipemaker, had at least two sons: Charles-Joseph-Dominique (1745-1812), and Louis-Joseph (1754-1806), the latter also being a pipemaker. The latter's son, Louis-Maximilien père (1782-1834), succeeded his father, and was in turn succeeded by his son Louis-Maximilien fils (1809-92). Following his death, his son-in-law Georges Audebert continued the business until it closed

(Coolen 1970: 393, 400). In a recently-discovered document (Coolen 1971), Louis-Maximilien *père* describes the firm and its products in 1819. The description of the manufacturing process is noted and discussed in 2: I, but the description of the factory is given here because it affords a comparison with that given for the factory later in the C19 when Louis-Maximilien *fils* had built new works and the firm had reached its zenith, and this latter description is given below.

In 1819 the firm employed between 400 and 500 workers, most of whom had been with the firm for 20 or 30 years. Fiolet stressed the advantages of having the workmen's wives and sons and daughters all employed together; children started work when aged ten. The weekly wage bill for the workers was between 1,800 and 2,000 francs. The firm's pipes were sent throughout France, particularly to Paris, Bordeaux, and Brittany. Formerly many had been exported to the colonies but at present this had almost ceased (no reason is given). The manufacture of French pipes, Fiolet opined, would be greatly increased if there were, failing an outright prohibition, at least higher duties levied on Dutch pipes - "*On connaît le préjugé malheureux qui existe en France que tout ce qui est étranger doit être meilleur*" (Coolen 1971: 446). Fiolet noted that "*dans les derniers temps calamiteux...malgré la stagnation des affaires*" he had kept on his 400-500 employees. Unfortunately Fiolet does not indicate what his annual production was.

As noted above, under Louis-Maximilien *fils* the firm reached the height of its fame; and it also began its decline. The works on the rue du Faucon (now the rue Thiers) were built at this time, complete with 12 h.p. steam engines, three square kilns each of over 12 cubic metres capacity, now fired by coal and not wood as was the case in 1819, producing 60,000 gross pipes at 100 to 120 firings a year. More than 700 workers were employed, including women and children. At this time too, pipe-bowls in the form of historical or mythological persons were produced, and glazed pipes with the name of the smoker or that of the *Cercle des Quatre-Moulins*, a group which met each Sunday in the hostelry of that name. At one time, 80,000 pipes a day were being produced and exported all over Europe and to Africa and America. According to Jakowsky (1956: 25), who is probably using the 60,000 gross figure mentioned by Coolen above, the firm was producing over 8,000,000 pipes a year, but at the Crystal Palace Exhibition of 1851 Fiolet was recorded as producing more than 200,000 gross pipes in 1,200 shapes, plain and ornamented (Fresco-Corbu 1962: 1445-6), and this represents almost 29 million pipes, a figure more in keeping with Coolen's other figure of 80,000 pipes a day, which for a six-day week and over 52 weeks would amount to almost 25 million. (Except where otherwise noted, information on the Saint-Omer industry comes from Coolen 1970. An earlier, much shorter, and undated account by Coolen (n.d.), much of the information in which is similar to Jakowsky 1956, gives differing information on certain points. It is assumed here, as it is assumed with Jakowsky 1956, that Coolen 1970 replaces earlier publications.) In 1853 it was recorded that two Saint-Omer firms (presumably Fiolet and Duméril) made 45 million pipes between them out of 11,000 tons of clay. This suggests, when compared to the previous figure, that Fiolet produced nearly twice as many pipes as Duméril at this time (Fresco-Corbu 1962: 1445).

From the later 1850s, however, the cigarette and brier pipe made inroads on the clay pipe market. Taxes on the superior-quality Saint-Omer pipes cut sales abroad and Belgian-made imitations of inferior quality were able to avoid these taxes. In 1892 Louis-Maximilen's son-in-law George Audebert took over the firm, but its days were numbered. According to Coolen (1970: 400) the firm closed during the WW I because of lack of raw material and manpower and re-opened in 1919 only to close for good after a few months. An idea of the prosperity of the firm at the height of its business can be had from Louis-Maximilien's philanthropic works: apart from opening a *Caisse de prévoyance* for his workers which gave interest-free loans, he helped found the *Société philharmonique* and built the present *Salle de Concerts* (Coolen 1970: 395). (FIGS 125-27) show the site of the Fiolet factory, the last parts of which were apparently demolished only a few weeks before these pictures were taken in April 1969.)

The Duméril firm, later known as Duméril-Leurs, was founded in 1845 and closed in 1885 according to Coolen (1970: 399); ca.1895 according to Jakowsky (1956: 25). The family belonged to the Abbeville cloth trade, and the founder of the pipe firm, Constant Duméril, was the son of the director of the military hospital in Saint-Omer, Florimond Duméril (Coolen *loc. cit.*). Jean-Léo (1971: 30) gives the firm's dates as 1844-ca.1885; he also indicates that the "Leurs" in the firm's name was part of a full name which was "Duméril, Leurs Fils & Cie" (The Dumérils, their Sons, and Company), and that the firm's founder, Constant Dumeril, was mayor of Saint-Omer. In 1846, again according to Jean-Léo, the firm was employing some 350 workers, almost all of them Belgian. The last member of the family gave a collection of pipes, said to comprise an example of every type made by the firm, to Saint-Omer (Jakowsky 1956: 23); this collection, housed in the Hôtel Sandelin, has an estimated 3,000 pipes, pipe-bowls (including a few of porcelain), and cigar- or cigarette-holders. A Duméril-Leurs stub-stemmed pipe with the bowl in the form of a head with long hair and a full beard is known from a site in Ghana (Calvocoressi MS).

It was not possible in April 1969 to examine these pipes other than through their glass cases, but the most common identifying mark was "Duméril/Leurs/à S^{t} Omer/Déposé*" sharply impressed on the stem. Several pipes in the collection of the Bristol tobacco firm W.D. and H.O. Wills as well as an example in the Cuming Museum, Southwark, London, and another in the Simco County Museum, Ontario, Canada, have "E. Duméril/E. Bouveur/à S^{t} Omer" impressed on their stem; Jean-Léo (1971: 30) notes that when Constant Duméril died the firm was taken over by E. Duméril and E. Bouveur - unfortunately no date for this useful change in marking the pipes is given, but it must have been by 1877 as the firm has a London office with the double name in that year (Bloice in Atkinson and Oswald 1969: 219 - Bouveur is spelt Boumier there). One stem was noted marked "VILLAR.../CLERMO...", presumably the product of a maker at Clermont-Ferrand (*département* of Puy-de-Dôme) in the Auvergne, though none is noted there by Jean-Léo. Why this apparently isolated example should be seemingly associated with the Duméril Collection is unknown, unless it is the product of a firm taken over by the Duméril concern. Just how many Dumérils and their sons were involved in the firm, as implied by Jean-Léo's indication of its name being Duméril, Leurs Fils & Cie, is not indicated. The firm was also famous for its figurines (Coolen *loc. cit.*) and these too are on display with the pipe collection at the Hôtel Sandelin.

Duhamel du Monceau gives no history of pipemaking in northern France, but the very lack of references to the origin of the industry there suggests it had been established a considerable time before his writing, which might agree with the ca.1700 date suggested for Minet and the first Fiolet. Duhamel du Monceau's one reference to the past is an incidental mention of the Dunkirk industry's having been started with Dutch workmen (1771: 8). According to Jean-Léo (1971: 11, 25), Dunkirk - at that time a prosperous free port involved in the tobacco-industry - was the earliest French pipemaking centre, the first workshops appearing in the first half of the C17; however, no makers' names are mentioned. Coolen (1970: 389) also indicates Dunkirk saw the earliest north French production, but that Saint-Omer appears to have become the major centre; Duhamel du Monceau implies Dunkirk was still the major French pipemaking-centre in his time, though this may simply reflect his available sources. The unpublished Gouda pipemakers' guild records translated in Ottawa refer to Dunkirk bribing Gouda pipemakers in 1749 to move to Dunkirk at a time when Gouda trade was slack, and to Gouda offering the workmen 26 guilders each and a promise of priority in finding work to come back; this may be an event referred to by Jean-Léo (*loc. cit.*), though dated by him to 1751, when a certain M de la Ruelle was given a ten-year monopoly to manufacture "faience" pipes and set up business with Dutch workmen. The Dutchmen recommended the use of Andenne clay, the clay used at Gouda, and Dunkirk pipemakers henceforward abandoned the use of Hautrage clays. De la Ruelle's widow continued her husband's business and monopoly; in 1783 it was being run by a widow Moret and her sons. Savary des Bruslons in the 1759-65 "new" edition of his *Dictionnaire universel*..., where the entry on pipes is still probably basically early C18 in date, mentions no French pipe-making centres other than Rouen (see below) except for a passing reference among various taxes levied on pipes to one of five *sols* a gross imposed in 1751 on pipes made at Dunkirk (Savary des Bruslons 1759-65 ed: IV, col. 200); but another mid-C18 French source, the *Dictionnaire domestique portatif*,... published 1762-64, whose entry under "*Pipe*" is virtually identical to most of Savary des Bruslons's account and is almost certainly copied from the 1759-65 edition or an earlier edition of that work (see p.54 n. 16), includes the comment that "*Il s'est établi, il y a quelques années, une fabrique de pipes dans la basse-ville de Dunkerque*" (Roux *et al* 1762-64: II, 357).

A bowl with the superbly-moulded coat of arms of Louis XV of France and his wife Maria Leszczynska of Poland and the words MANUFACTURE ROYALE and DUNKERKE on the pennons held by the royal supporters, two angels (FIG. 128, a-c), was recovered from a 1741-68 context at Louisbourg (C. Lindsay *in litt.* 6 December 1972). The bowl, which is heeled, is typically Dutch in shape, and also has the careful rouletting immediately below the lip. Its discovery clearly indicates just how much is likely to await discovery when a systematic study of the French pipemaking industry is undertaken, for this writer has not come across any other reference as yet to a Royal Factory at Dunkirk. As Louis XV married Maria Leszczynska in 1725 the arms on the pipe can be dated between that year and 1774, when Louis died, so taking into account the archaeological evidence - and the fact that it is hardly conceivable a French-made clay pipe would have arrived at Louisbourg after 1758 as Louisbourg was captured from the French by the British in that year - it would appear likely that the Dunkirk factory obtained royal patronage sometime in the period 1725-58 (the arms were identified and dated by the College of Arms, London, in litt. 22 March 1974). If the apparent pipe-making activity in Dunkirk ca.1751 noted above related to the establishment of this factory, as it well may, the pipe should be datable to ca.1751-58. A stem fragment, polished in the Dutch manner and with DUNKERKE round it between decorated lines in typical Gouda fashion, has also been recovered from Louisbourg, in a 1758-68 context (C. Lindsay loc. cit.). (The preceding two paragraphs, and the first four paragraphs of this Section, have subsequently been published (I. Walker 1975b).)

In 1758 an observer (quoted in Bastien 1973: 2nd chapt) noted there were three pipe factories in Dieppe (Seine-Maritime), one of which "was expanding daily and giving cause to believe it will shortly be the largest in the kingdom". In 1789 another observer of the Dieppe industry (quoted in Bastien loc. cit.) very briefly described how the pipes were made, remarked that the clay came from the Neufchâtel-en-Bray area SE of Dieppe (see 2: I and IX), and noted that the principal maker was one Bretel (Jean-Léo (1971: 25) notes Bretel at Dieppe, but with no comment other than that he was working there in the C18). Bretel's workers were brought from The Netherlands. His best products went for export, principally to America, and his others to sailors and soldiers. At that time ca.200 people were employed in the trade in Dieppe, but following the closure of the Manufacture des Tabacs there in 1811 the pipe industry died, and when the tobacco-manufactory reopened in 1853 the pipemaking trade had long since moved to other parts.

Duhamel du Monceau (1771: 6, 25-7) also noted pipemaking at Rouen (Seine-Maritime), observing that although Rouen pipemakers maintained their products were as fine as Dutch pipes they certainly looked markedly less good. Savary des Bruslons (1759-65 ed: IV, col. 200), probably describing the situation in the early C18, is even less complimentary about the quality of Rouen pipes, describing them as being made of a coarser clay than were Gouda pipes and "d'une vilaine couleur, la plûpart [sic] tortues & mal formées". However, Rouen may nevertheless have been the major French production centre in the early C18, for apart from the incidental reference to the tax imposed on Dunkirk-made pipes in 1751 (see above) which is obviously a late addition to the entry on pipes, Savary des Bruslons mentions no other French pipemaking-centres.

According to Jean-Léo (1971: 12-13, 29) the Rouen pipe industry, using local clay from nearby Saint-Aubin and Bellebeuf, was started by Englishmen who set up business in the Saint-Sever suburb where the street-name rue de la Pie-aux-Anglais is supposed to be a corruption of "la pipe aux Anglais". In 1633 there is a reference to a "marchand anglais faiseur de pipes à prendre petun" in Saint-Sever whose name (presumably gallicized) was Jacques Veron; in that year he took two apprentices. The mark ascribed to him, a heart surmounted by a crown and the initials I and V on either side of the heart, sounds rather Dutch, but could easily be Herefordshire (I. Walker 1974b: 388), and a number of Rouen marks illustrated by Jean-Léo do look Dutch. Two other Rouen makers of this period, Jean Crenecher and Thomas

Gaye, Jean-Léo suggests are very probably English also. No references to pipemakers of these or similar names occur in Oswald's 1960 list of English pipemakers nor in Atkinson and Oswald's 1969 supplementary list of London pipemakers, but Thomas Gaye certainly sounds English, and evidence may yet be found in Atkinson's research on Southampton and Portsmouth pipemaking at present in progress, for there are the traditional cross-Channel connections between these ports and Rouen and there was pipemaking at both Southampton and Portsmouth from ca.1620 (Oswald 1970c: 227-8). Further, as noted in Section I above, a few years before 1642 the Westminster pipemakers' guild visited Southampton to search for unlicenced pipemakers there working in defiance of the Westminster monopoly, and one can imagine pipemakers in the area there deciding to emigrate rather than face the continual hazards of leading a semi-clandestine existence.

Jean-Léo lists a number of Rouen pipemakers in the C17, and Lesur notes (1957-60: 834) that when a Jean Cottereau was given a 20-year monopoly to produce pipes in Rouen towards the end of the century it was said that 500 Rouen families had been involved in the trade prior to the monopoly. (There is confusion in Lesur's notes on Cottereau's monopoly - the date given is 1693, but it is also noted that Cottereau escaped to England when the Edict of Nantes was revoked in 1685, suggesting the monopoly may have dated to 1683. Cottereau was imprisoned in 1695 for 18 years according to Lesur, but when released his monopoly still had two years to run, so presumably he was released before the 18 years were up; he died in 1716. (Lesur persistently calls him Cottereau Jean, but Jean-Léo is probably right in reversing the order of the names.) Cottereau was born in Nîmes (Gard) in SE France. It would be interesting to know if when he fled to England he went to the Southampton-Portsmouth area.

Hendrickx (1963: 161) implies the first French pipes were made at Rouen and Dunkirk; however, he also notes (loc. cit.) that as early as 1659 Louis XIV had sold the privilege of selling pipes in Paris and in other cities to one Pierre de Montfalcon, which indicates pipemaking in a number of centres in France by the mid-C17.

The use of the word trameuse for trimmer suggests Dutch influence as does scraabes for spew, for this latter must derive from the Dutch term scrables. Geographically and economically northern France-modern Belgium probably looked towards The Netherlands - clay pipes were known as pipes de Hollande (Duhamel du Monceau 1771: 2) - although the manufacture, at least at Dunkirk, of pipes imitating English ones in shape indicate that English shapes found a ready market in France. However, the general lack of Dutch terms indicates that direct Dutch influence was not strong and that the north French industry had probably developed on its own for some time.

Indirect evidence that pipemaking in France was not known on any large scale before ca.1700 comes from the export figures noted (Oswald 1960a: 48, London is the port meant, cf Oswald 1959a: 59-60) for the port of London for the period Michaelmas (29 September) to Christmas 1698 which show that of nearly 45,000 gross pipes exported, 41,000 went to France compared to nearly 2,500 for Virginia and Maryland, indicating a very considerable trade with France and implying little in the way of a native French industry. 1698 was only one year after France had been fighting England and The Netherlands in the War of the League of Augsburg.

According to a study of the Givet pipe industry carried out by scholars of the *Ecole Primaire* and the *Collège Moderne* at Givet (Voisin (ed) [1950]; some additional details on the Gambier firm in Jean-Léo 1971: 35), pipemaking was already flourishing in what is now the *département* of Ardennes by 1677, when a contract was recorded between two master-pipemakers at Charleville, ca.28 miles south of Givet; but the Gambier factory at Givet did not start until 1780. (Lesur (1957-60: 265) notes a Gambier at Givet making pipes "*façon de Hollande*" but is vague about the date, though implying the C18). Gambier utilized clay from Niverlée (ca.6 miles SW of Givet, just over the Belgian border), where mines had been opened the previous year, and from Andenne ca.34 miles downstream (north). In 1848 there were two factories in Givet employing 330 workers, according to one account; another account in 1867 estimated 600 pipemakers worked in Givet, though in 1869 only the one Givet factory was in business.[9] In 1817 the son of the original Gambier took over the firm, and after him the owners of the firm were a M Hasslaur and a M Fiolet; they were succeeded ca.1894 by Hasslaur's widow and a M de Champeaux and a M Quentin. In 1908 they were succeeded by a M Quentin *fils*. (Fiolet was a member of the Fiolet Saint-Omer pipemaking *family*.) In 1923 only ten pipemakers were working with the firm, and they noted that foreign and particularly German pipes were not subject to import duty and were undercutting Gambier prices because the latter's pipes were still entirely hand made. Even so, however, they were exporting in that year to Canada, Japan, England, and The Netherlands. Three years later, in 1926, the firm closed.

At that time an inventory of the firm's assets indicated more than a million pipes of several hundred different types in stock; the last were smashed or used for target-practice by American soldiers in 1944. As late as 1894, when the best days of the firm must have been over, a catalogue lists nearly 1,600 different models, and the 1926 inventory noted 1,250 moulds which were scrapped. The buildings remain, and are at present used by a slipper-making firm. The ceramic branch of the Gambier firm still exists in Givet, though no longer under the Gambier name (Voisin (ed) [1950]: 7th, 8th, 14th-16th pages, illus. of factory and map on 10th page; Jean-Léo 1971: 19-20). (The *Guide* to the Musée du Tabac at Bergerac (Anonymous n.d. [2]: *6th page*) implies the Gambier factory was destroyed during WW I; the *Maire* of Givet (*in litt.* 9 July 1968), noting the Givet premises had closed down after WW I, indicated the few documents on the company which had been kept in the Givet *Mairie* had been destroyed in the evacuation in 1940).

Gambier evidently did not manufacture pipes in Paris, but the firm did have offices and an important shop there, which closed in 1908 (Jean-Léo 1971: 35). The "Paris" marking on Gambier pipes may have been a snobisme; Jean-Léo (*loc. cit.*) notes that when the Gambier firm took over that of Noël of Lyons (*see below*) ca.1890, pipes marked "Noël Lyon" were for the home market and those marked "Noël Paris" for export. Certainly, many pipes marked "Gambier à Paris" have been seen by this writer in Continental museums and have been found occasionally on North American excavations (e.g. Lemieux 1965) - indeed, this writer does not recall ever having seen a Gambier pipe marked "Givet", though some Gambier-marked pipes (e.g. Caywood 1955a: 60, fig 16 nr btm rt; Brose 1967: 62, 51 pl VI,K) with apparently no place of manufacture on them have occurred in North America. (Fresco-Corbu (1962: 1446, fig 5 top example) refers to and illustrates Gambier pipes marked "Paris.") That Gambier continued to make at least pottery with a "Paris" mark until a relatively recent date is indicated by Lesur (1957-60: 265) who illustrates a Gambier ceramic trade-mark registered in 1928 which comprises a rayed, faced, sun with PARIS above, GIVET below, J to the left (as looked at), and G on the right. (Gambier pipes were much plagiarized - see below - but the initials JG inside a small circle on the base of the pipe are a genuine mark of the firm.)

Gambier pipes became so popular in the C19 that "Gambier" became practically a synonym for a clay pipe - Rimbaud, writing in 1871, described himself thinking antagonistic thoughts about the world with a beer tankard in his hand and a Gambier between his teeth.[10] Jean-Léo (1971: 15) notes that the 1922 edition of the Larousse contained the expression "Tête à Gambier" and defined it as "se dit d'une personne à figure grotesque", a reference to the hundreds of moulds depicting caricatures or grotesque animals which the Gambier firm had (see numerous illustrations in Jean-Léo 1971).[11] Voisin ([1950]: 4th page and refs) claims - rather surprisingly, and one suspects, inaccurately - that Gambier pipes were pipes of the less well-off, the wealthier classes prefering an "Onnaing", the pipes produced at Onnaing by the Scouflaire firm (see below). (The comment possibly comes from the same source as that noted in Rimbaud: Oeuvres, p.373 n.7, making the same observation). From the Continental museum material seen by this writer and from Jean-Léo's catalogue and illustrations Gambier certainly appears to have specialized in superbly-moulded pipes, though doubtless he also produced cheaper forms; Scouflaire pipes seen by this writer have been much more modest products (cf reference below to Scouflaire producing Gambier pipes in effect under contract for the Gambier firm).

Pipes marked "Scouflaire/à Onnaing" are in the collections of the Museum voor Volkskunde, Ghent; the Musée de la Vie Wallonne, Liège; the Musée de Folklore, Tournai; and the Musée du Tabac, Bergerac: some Scouflaire pipes have a D within a circle of dots on the heel and some of the products are of a fine red clay; according to the Conservateur of the Valenciennes City Library and Archives (in litt. 8 August 1968) the name can also be spelt Scoufflaire, Scufflaire, and Scuflaire. Onnaing is a small community east of Valenciennes on the road to Mons near the Franco-Belgian border. Between 1820 and 1822 two Scouflaire brothers and their wives, one of whom was the daughter of a Nimy pipemaker, emigrated to Onnaing where they continued in their trade as faience workers while their wives made pipes at home and fired them in the oven. In 1825 the family started a full-fledged pipemaking business which continued until 1936 when the last directeur closed the firm rather than accept the new paid legal holidays. In 1834 they opened another factory back in Nimy in Belgium, though this was never as important as the parent factory, which at one time used to make pipes in Gambier of Givet's moulds when that firm was unable to keep up with orders (cf Voisin's remark ([1950]: 11th page) that after WW I some moulds which had not been melted down as scrap-iron were sold to other manufacturers, particularly those in Liège, and that the Onnaing pipe-factory obtained the "Jacob" moulds). A photograph of the old Onnaing premises shows a large factory with at least three big bottle-kilns. In

1860 the firm employed 200 women and 100 men (Lefrancq 1970a).[12]

At Montereau-faut-Yonne (Seine-et-Marne), ca.45 miles SE of Paris, a pipe-factory was started, taking advantage of suitable local clay deposits at Salins and Saint-Germain-Laval, sometime in the first half of the C19 with workers from Saint-Omer (Colas 1959: 234 and 1962: 31; Brongniart 1854 ed: III, 13, 17; also Rougier 1966a-b, which appears to be largely an unacknowledged copy of Colas 1959 and 1962). The business was founded by one Gisclon and continued by his son-in-law Dutel, who had taken over by 1859 (Fairholt 1859: 188) and later worked in association with a G. Boucher (Jean-Léo 1971: 27). The factory was destroyed by fire on the night of 4-5 December 1895 (Colas *loc. cit.*), but the firm was taken over by that of Victor Belle of Erôme (*département* of Drôme) in the Rhône valley which was in business from 1834 to 1930 (Jean-Léo 1971: 27, 25). The Musée de la Vie Wallonne at Liège in Belgium has a pipe marked "Gisclon/a Lille/D...P", and by extraordinary good fortune half a boxful of identically-marked pipes, still in their original packing - chopped straw and chaff - is in the Priest's House Museum, Wimborne Minster, Dorset (FIG 111) (at the beginning of this century the building was a tobacconist's shop and the box of Gisclon pipes, together with a half-filled crate of Southorn of Broseley pipes, was found in the attic when the building was being converted into a museum). Presumably this business was a branch or perhaps the original of the Montereau firm, but nothing further is known about it. In the Musée de Folklore at Tournai, just across the Belgian border from Lille, a pipe with "AURIOL" and "a PARIS" moulded on the stem sides has impressed on the top of the stem a shield with "Gisclon/Bréveté [sic]/S.G.D.G./*", which suggests that a Gisclon took over Auriol or some moulds of that firm. A stem-fragment marked "néo/Culot/Gisclon/paris" from Lower Fort Garry, Manitoba, Canada, in the collections of the Research Division, National Historic Parks and Sites Branch, Ottawa (I. Walker 1971d: 34 pl 6 btm rt, 32 pl 5,7, 33, 31 - note that on p.31 Lille is inadvertently located in Belgium) also suggests there was a Gisclon working, or at any rate with a branch, in Paris.

A stem-fragment with NOEL raised from a depressed rectangular
ALYON
background was found with surface-material at the site of the Glen Airn Sawmill, 1842-1880s, on Big Creek nr Middleport ESE of Brantford, southern Ontario (T. Kenyon 1970); and at Fort Ridgely, Minnesota, occupied 1853 to 1861 and 1865 to 1867 a pipe with what appears to be the same form of mark on the underside of the stem almost under the bowl was found (Sackett 1943: 77, 74 p IV lower), Lyons (Lyon - *département* of Rhône) was noted as a pipemaking centre last century (quoted in Colas 1959: 235 and 1962: 32). Jean-Léo (1971: 26) notes that the firm of Noël Frères worked at Lyons from 1808 to ca.1920 and latterly also made brier pipes. About 1890 the firm along with some others became part of the Gambier concern (Jean-Léo *op. cit.* 35) but presumably continued to produce at Lyons; the mark "Noël Lyon" was used for home-destined products and "Noël/Paris" for oversea products, as noted above; this was possibly a piece of snob-appeal. Pipes with "Noël/Paris" sharply impressed on their stems are in the Musée du Tabac, Bergerac, and the Museum voor Volkskunde, Ghent; and with the

addition of FRANCE in a third line in the collections of the Smithsonian Institution, Washington. Pipes marked "Noël/Paris" with and without FRANCE are in the W.D. and H.O. Wills Collection, Bristol. (The addition of FRANCE to most of the French makers' marks seems common on the pipes found in North America, but only a single example - a Fiolet pipe in the Musée de la Vie Wallonne, Liège - has been observed in Continental collections. Continental material found in Britain is known marked in both forms (e.g. Atkinson 1958: 122 noting Fiolet pipes some with "France" after "St-Omer" and others with "Deposé" instead), though the crateful of Gisclon pipes at Wimborne Minster (see above) were not marked with their country of origin. Possibly it was added only where it was a legal requirement (cf Fontana *et al* 1962: 93; see also discussion in 4: IV), which it never was in Britain in the C19 (Department of Trade and Industry, London, *in litt.* 11 May 1972).

In 1659 the "*très haut et très puissant seigneur, monseigneur Eugène-Maurice, comte de Soissons*" obtained from the king the "*privilège de vendre, luy seul, tant èz ville et faubourgs de Paris que dans les autres villes du royaume, toutes les pippes qui servent à prendre le tabac et petun en fumée*", the monopoly to be held for nine years provided the pipes were not sold at more than 12 *sous* a dozen (quoted in Franklin 1906: 571). This suggests pipes were in widespread use by that date.

A pipemaker by the name of Vausselin was working at Avignon (Vaucluse) ca.1670, and in 1692 two brothers Pierre and François van Slaton were recorded making pipes there (Fresco-Corbu 1962: 1445, Jean-Léo 1971: 14) - presumably these latter two were Dutch, which suggests Dutch pipemakers spread widely in Europe. (Hendrickx (1963: 161) also mentions Vausselin and the van Slaton brothers, suggesting he is familiar either with Fresco-Corbu's article, or more probably with a source which the latter used; his version however, is that the Van Slatons established themselves at Avignon in 1592 and that they were followed by "French potters" such as Monelergeon and Vausselin.) Also in the south of France, a Louis Ragon was given the privilege in 1689 of establishing a pipe-factory and supplying pipes to most of SE France - Languedoc, Dauphiné, and Provence - for 15 years. He set up factories at Toulon (Var) and Tain, near Valence (Drôme), in 1689 but in 1691 his privileges were stopped because he was charging too much for his products (the appearance of the Van Slatons the next year may have been connected with this). However, in 1698 his privileges were renewed and Roussillon on the Spanish frontier included in the area within which he could market his products (Lesur 1957-60: 757, 1035, 1024).

At Troudoustein, near Morlaix (Finistère), Brittany, it is noted (Lesur 1957-60: 1052-3) that pipes were being produced in the C17 and up to ca.1736, when their production ceased.

At Arras, Lesur (1957-60: 1114) notes a pipemaker in 1743; ca.1770 a faience maker left Lille to set up business in Arras and there made pipes, although what type is not known. About 1850 an Ernest Gousseaume of Arras was making pipes said to be as renowned as those made at Saint-Omer.

An area which appears to have rivalled the north of France as a pipemaking centre, in quantity if not perhaps in fame, was Alsace-Lorraine, where pipemakers are recorded from the beginning of the C18 (Lesur 1957-60: *passim*). There were suitable clay deposits in the Strasbourg area and there were also the Westerwald clay deposits farther down the Rhine, in Germany (see 2: IX). A Dutchman, Charles-François Hannong, born in 1669 at Maastricht, set up as a pipemaker in 1709 at Strasbourg, and a number of other pipemakers, mainly with German names, appear there soon after (Lesur 1957-60: 1008, 1010).

A pipemaker who is said to have worked in north France during the period ca.1850-80 and whose products became famous enough to be both widely exported and widely plagiarized, but about whom virtually nothing is known, is Peter Dorni. His pipes, at least one variety of which appears to be characterized by a relatively upright Dutch-style bowl and a stem with heavy ribbing round it and the words PETER and DORNI on either side of the stem in rectangles, have been found in various parts of North America, and identical stems have also been found with variously PETER DORNI and IN GOUDA, J&G.PRINCE and IN GOUDA, ASPARNAAY and IN GOUDA, MÜLLENBACH and THEWALD.HÖHR, and I.G. PRENSE and IN GOTHA on their stems, indicating Dorni pipes were imitated by at least two Gouda firms and also by Müllenbach and Thewald of Höhr in the Westerwald in Germany and presumably by an unknown firm in Gotha in Germany. A 1900 list of pipe-types made in Scotland (Anonymous 1900: passim) shows that the Glasgow firm of Davidson produced a "Peter Dornie" (sic) pipe and that McDougall's of Glasgow produced four versions, two "Peter Dornie" pipes, a "Small Dornie", and a "Fluted Dornie". Unfortunately, no examples of these types are known. (Dorni pipes have been discussed in Omwake 1961: the writer is at present collecting information for an updated study, see also additional information on p. 683 n.81)

In the C19 pipemaking in France appears to have been widespread, from Brittany to Corsica and the north to Bordeaux (Lesur 1957-60: passim; cf Hendrickx 1963: 162 and Jean-Léo 1971: 23-31), but protracted correspondence has failed to ascertain definitely the present extent of the French clay pipe industry. There is conflicting evidence, and several firms which allegedly still make these pipes have not replied to letters sent - it is possible that some at least may be brier pipe makers. Two writers in the 1950s claimed that clay pipes were still being made in France: Hervieu (1951: 36) said they were being made in the départements of Gard - the area round Nîmes, at the mouth of the Rhône - and Nord, as well as "near Namur" (presumably Andenne) in Belgium and at Gouda in the Netherlands; Sauvage (1955: 26) talks of their production in Flanders and Provence.

At the end of 1967 a Joseph Augoyard restarted the old pipe factory of Job Clerc at Saint-Quentin-la-Poterie near Uzès in the département of Gard, which might agree with the two southern references in Hervieux and Sauvage; however, he closed ca.1969-70 and by the end of 1971 the factory was up for sale (Jean-Léo 1971:30; Lefrancq in litt. 9 October 1969, 19 January 1971, and 13 November 1971). Saint-Quentin-la-Poterie, as the name suggests, has a long pottery tradition (cf Lesur 1957-60: 932); Lefrancq (9 October 1969) notes that the village coat of arms is a vessel containing seven pipes, suggesting pipemaking also has a long tradition there. Clerc's business - "Manufacture de pipes en terres blanche, rouge, brune & noire" as an undated catalogue reproduced by Jean-Léo (1971: in end section of illustrations, no pagination) advertised it - went back to 1812 (Jean-Léo 1971: 30), and must at one time have been of some importance, for the catalogue noted above indicates "Fabrication spéciale pour les Colonies & l'Amérique du Sud". Augoyard produced bowls only, of an orange clay. At Marseilles

(Bouches-du-Rhône) the firm of Bonnaud was founded in 1824. Two sons of the founder continued the business as Bonnaud Frères, but apparently subsequently split to form the firms of Hippolyte Léon Bonnaud (who advertised "_Exigez les deux prénoms_") and Maison Bonnaud (who advertised "_Bonnaud sans prénom_"). The latter was still run by the Bonnaud family ca.1937, advertising itself modestly as "_La Plus Ancienne du Monde Entier_"; the former, continuing under the name of Hippolyte Léon Bonnaud but laterally run by the Gasquet family, was working as late as ca.1955 with three people, though in an intermittent fashion (Jean-Léo 1971: 27).[13] The Paris firm of Hermel made an unsuccessful attempt to sell pipe-bowls made on the Côte d'Azur, at Cannes or Nice (Alpes-Maritimes) (Jean-Léo _op. cit._ 28, second-last page of illustrations). At Vallauris, also in Alpes-Maritimes, a potter Marcel Giraud made in 1970-71 a de Gaulle and a Pompidou pipe, the 40 examples being exclusively for a Paris collector, a Mme Westphalen (Jean-Léo _op. cit._ 31, second-last page of illustrations).[14] The examples suggest that possibly SE France, rather than the NE, has become the last area in France where clay pipe making survives.

As noted in the preceding section, Lefrancq also indicates (_in litt._ 9 October 1969) a pipemaker named Petri still working at Schoten, near Antwerp in Belgium (see also 2: IX); and Van Hooneker (1971: 243; see also 2: III) records Frans van Overschelde continuing a Courtrai business at Kuurne ca.2 miles NE of that city, only a few miles from the French border, either or both of which may be the northern source vaguely indicated by Hervieux and Sauvage. Certainly clay pipes are still sold in France, for this writer saw examples with straight stems ca.9 ins long, in both white and a fine red clay, on sale in Bordeaux in April 1968; and the same or similar pipes were on sale in Saint-Omer in April 1969. They have no maker's mark; the red clay appears very similar in texture and colour to the Scouflaire red clay pipes noted above, and Lefrancq (_in litt._ 19 January 1971) notes that Scouflaire pipes are still on sale in places, though the factory closed in 1936 (Lefrancq 1970a).

Lefrancq also notes that Gambier pipes can still be obtained, and that a new French firm, possibly in Paris, called Le Nargileh, was pouring "Jacob" pipes on the market from an old Gambier mould. Herment (_in litt._ 21 March 1968) noted a firm, Maison Laville, at Montluçon (Allier) in central France who were producing Jacob pipes in a clay similar to that of Gambier pipes, but this writer has been unable to contact them by letter. (Jacob pipes were superbly-moulded bowls in the form of a patriarchal head with turban and full flowing beard made by Gambier last century and sometimes highlighted with coloured glazes. They were much copied by rival firms, to the extent that Gambier had JE SUIS LE VRAI JACOB moulded on a ribbon on the turban while rivals had variants such as JE SUIS JACOB, JE SUIS LE BON JACOB, JE SUIS LE GRAND JACOB, JE SUIS LE BEAU JACOB, JE SUIS LE VIEUX JACOB, IK BEN DE WARE JACOB, DEMANDEZ JACOB, or other wording such as L'EVEQUE ANCIENNE or L'UNION FAIT LA FORCE (some of these are noted in Jean-Léo 1971: unnumbered plate and caption in end section; see also Garreau 1972: 46-7 fig 13). Jean-Léo, who publishes the entire list of Gambier products and has many excellent illustrations, notes 15 sizes and models of Jacob pipes advertised by the firm; Fresco-Corbu (1962: 1446 fig 4, first and second left in upper row) illustrates two sizes of Jacob bowls, both of which appear to be genuine Gambier products.

Herment in his book *Traité de la pipe* (1956, 1965 ed) illustrates - pl 12 - a woman trimming clay pipes, but neither he (*in litt.* 21 March 1968) nor his publisher can offer any information as to where and when this picture was taken, although the credit for this and several other unrelated pictures is given to one R. Viollet.

SECTION VI: SWITZERLAND

The pipes formerly smoked in Switzerland - and, apparently, eastern France - are unusual in that they are of metal. Unfortunately, most incidental references to them, and the only study made of them (Reber 1914a; 1914b), have been by people convinced that they belonged to a period much earlier than the introduction of tobacco into Europe.

Only Godet (1898) really considers C17 and C18 evidence. From those illustrated (Reber 1914b: figs 1-IX; see also Quiquerez 1864: 30; 1871: pl IV 1-3; E.A. Barber 1880b: figs 1-10, 12-13; Lejeal 1897: 278 figs 1-3 - figs 2 and 3 being from eastern France - Godet 1898: 131 figs 2-7bis; McGuire 1899: 452 figs 72-3; Reber 1900: 167; and A.S. Brown 1923: 17) general typological similarities can be seen to Dutch pipes illustrated by Friederich (1964a: 11 fig 7; 1964d: 4). Reber makes no attempt at dating - other than to assert their high antiquity - nor does he attempt any typological arrangement. It is therefore unclear, particularly as the examples illustrated may have been only the most "interesting" specimens, how these pipes should be treated. There seems to be material which has similarities to later C17 Dutch material, and on very general stylistic grounds a number of pipes illustrated look as though they should be C18 in date. Among the features on pipes in this later group are heels with an expanded foot. This appears to be a German characteristic: some pipes made at present in the Westerwald have this feature and it appears both on German porcelain pipe-bowls (e.g. Fresco-Corbu 1963: 424-5) and on ordinary clay bowls (e.g. Gifford 1940: 129, 123 pl IV, 22; Sackett 1943: 30 pl VII, 1; Omwake and Becker 1965: 143-4) of last century, but there appears to be no firm dating as yet for its first appearance.

Several references (noted in Godet 1898: 132-3) indicate that iron, steel, copper, and brass pipes, as well as ones of boxwood and brass, were made and used in the Neuchâtel area in the mid-C18 and into the C19 but that by 1898 they had been out of use longer than the oldest inhabitants could remember. A reference in 1749 to a tax on "pipes de terre fine d'Hollande" suggests Dutch clay pipes were imported; some clay pipes are illustrated in some of the sources noted above and it is likely that the metal pipes evolved from clay prototypes. Metal pipes, being non-porous, would give a strong and hot smoke - their initial use may have been because there was no local pipeclay and pipes shipped up the Rhine were expensive and not always available, but once a taste for metal pipes had evolved, clay pipes may never have become popular. Duhamel du Monceau (1771: 2) mentions metal pipes but neither describes them nor says where they were used - iron pipes very similar to Swiss examples and with the same metal cap were being used in Sweden (Godet 1898: 131, fig 1), Norway, and Lapland (Pritchett 1890: 94-5; Lejeal 1897: 279-80, fig 8) as late as the end of last century.

Penn (1901: 37-8) says that tobacco first began to be smoked in Appenzfel canton in Switzerland in 1653 and that shortly afterwards laws were passed against smoking. As Appenzfel canton is in NE Switzerland this suggests German influence, especially as the Thirty Years' War of 1618-48 had spread the habit of smoking widely in central Europe (cf Quiquerez 1864: 31). In Berne in 1661 similar laws were passed and these were renewed in 1675 when the Chambre du Tabac, a court to try smoking offences, was instituted. This tribunal existed until the mid-C18. The first references to smoking in Neuchâtel appear in 1669 (Godet 1898: 132).

Corti (1930: passim, 1931 ed) agrees with a mid-and second half of the C17 date for the introduction of smoking into Switzerland. The tobacco plant was being grown in the country in the 1560s and 1570s in certain botanical gardens, but only for its medicinal use (Corti 1930: 61-2, 1931 ed), and by 1616 the medicinal use of snuff and smoking was known, though rare - one writer, praising the medicinal virtues of the herb, notes with astonishment that he had seen Englishmen smoking for six or seven hours without losing consciousness (Corti 1930: 121, 1931 ed). Even as late as the last decades of the C17, a Swiss visitor to England, one Muralt, could not get over seeing clergymen in London smoking clay pipes in inns and coffee-houses (Latimer 1900: 360).

Later in the first half of the C17, however, German tobacco-merchants and pedlars began to arrive - in 1643 one such merchant was refused permission to settle in Basle on the ground that "the town had no use for one of his trade" (quoted in Corti loc. cit.). In 1644 there were many local prohibitions, and by the early 1650s more widespread laws against smoking were passed. The struggle to enforce these laws continued until the beginning of the C18, when gradually the impracticability of enforcing them became obvious.

In the Musée du Tabac at Bergerac there is a lithograph by Charles Voght of a painting by H. Lenglet (probably Hilaire Langlet) of the Duchess of Berri, 1700, which shows her smoking a very long-stemmed clay pipe and has the caption "Souillant sa lèvre rose à la pipe des Suisses". Both Voght and Lenglet were C19 French artists, hence presumably the Victorian ring to the caption; but why the pipe depicted, which appears to be Dutch, should be referred to as Swiss is a problem which has not been solved.

The areas mentioned by Penn and those by Corti all lie in what can broadly be described as those open to German, and to a lesser extent French, influence, and it is in this area that all the metal pipes noted by Reber were found. This may indicate that smoking did not penetrate into southern Switzerland in early times, or at least not from the pipe-smoking northern areas.

(According to Penn (1901: 156-7) the pipe smoked by the Swiss at the end of the C19 was an unusual one. It comprised five separate parts: a bowl, which fitted into a hollow ball that acted as a reservoir for the tobacco juices, a metal lid "to prevent the Alpine winds scattering [the] contents," a stem which joins the ball at an acute angle, the mouthpiece which joins the stem at another angle, and a carved grotesque horse's head at the junction of mouthpiece and stem. The entire pipe was made of black horn and mounted with German silver - whether the bowl was of horn is not clear, but the presence of a reservoir suggests a non-porous material and a continuation of the tradition for a hot and strong smoke established by the metal pipes. However, Penn also notes that carved apple-wood pipes were made in Berne, and that they gave a very sweet and cool smoke, so presumably cool smoking was coming into favour by the end of the C19 - perhaps a reflection of the popularity of the brier pipes produced at Saint-Claude in France only a few miles from the Franco-Swiss border).

SECTION VII:
SCANDINAVIA

(Except where otherwise noted, the section on Sweden is based on Puktörne 1968, that on Norway on Pettersen and Alsvik 1944, and that on Denmark on Kristensen 1959. Puktörne's article appears (1968: 68) to be the first attempt in Scandinavia to use evidence from clay pipes to date archaeological contexts.)

Smoking was known in Scandinavia by the beginning of the C17 at the latest, for in 1606 an Anne Dirik Pipers of Helsingør (Elsinore), a port north of Copenhagen, left among other items in her estate a dozen tobacco pipes (Kristensen 1959: 82; Puktörne 1968: 63 and n.6). Whether her name indicates she was a pipemaker or the relative of one is not stated, but 14 years later a Kristian Pibemager, who may have been Dutch, is recorded setting up business in the same town (Friederich 1964a: 10). In 1612 a man called Anthionius and nicknamed "Tobakspiben" is mentioned in the minutes of a trial in Bergen in Norway (Puktörne 1968: 63 and n.6 and Kristensen 1959: 82 and n.2). These references indicate that pipes had reached Denmark-Norway (the two countries being at this time under one crown) by the early C17, and suggest that they were being made there considerably earlier than 1655, when the death of the first definitely-known Danish pipemaker is recorded - at Elsinore, where Anne Dirik Pipers lived 50 years previously (Kristensen 1959: 87, cf Oswald 1960a: 48). The earliest reference so far known to pipes in Sweden is a set of proposals for ship's articles dated 1628; a sealed find of a pipe in the sunken *Wasa* dates to the same year. (Many pipes were found during the excavation of the *Wasa* but most were later C17 and C18 according to the *Wasa* exhibition on show in Bristol in summer 1969 - the one pipe in this exhibition was Dutch and typologically datable to ca.1700). The earliest recorded reference to smoking tobacco in Sweden occurs in the following year, 1629, and it is clear from references in 1633 and 1635 that smoking was becoming widespread. That these initial references to pipes are connected with ports and ships is not coincidence - it seems very likely that the habit was initially introduced and spread by sailors as was the case in other countries (cf Corti 1930: 143, 1931 ed). In Denmark smoking spread during the first half of the C17, but it was the Swedish troops and mercenaries - particularly Germans and Poles - fighting during the Swedish Wars of 1643-45 and 1657-60 that appear to have made smoking widespread. A reference to snuff appears in 1637 (Kristensen 1959: 85). Swedish troops had been very prominent during the Thirty Years' War in Germany, which as already noted, was the major factor in making smoking universal in central Europe by the middle of the C17.

Laufer (1924b: 58) says that tobacco was first planted in Sweden in 1724; and by the mid-C18 there were tobacco-plantations, frequently associated with tobacco-spinning mills, in no fewer than 84 towns in Sweden-Finland (these two countries then being joined) - one such mill had been established at Varberg, on the Kattegat south of Göteborg (Gothenburg), in 1699. (Laufer also notes (*loc. cit.*) that tobacco was first introduced into Norway in 1616, but in view of the references already noted to a pipemaker in Bergen four years earlier it seems likely that tobacco was known earlier than 1616. Between 1632 and 1643 the importation of tobacco was prohibited in Norway; according to Laufer (loc. cit.) it was not until the period 1807-14 during the Napoleonic Wars that attempts were made to grow tobacco there. Its use had spread to northernmost Scandinavia by the second half of the C17, however, for it is recorded in 1674 (J. Schaffer's The History of Lapland (1674) p.116, quoted in Parsons 1964: 234 n.14) that the giving of tobacco as a pre-nuptial gift was an established custom there.

As noted in 2: V and VI dealing with pipe-manufacture in Denmark and Norway, native-made clay pipes were virtually non-existent in Scandinavia until the middle of the C18, when a protectionist policy towards native industry enabled pipemaking to achieve some temporary success. Prior to the mid-C18, pipes were imported from England and The Netherlands - there is some evidence to suggest that latterly the Dutch were outstripping the English. Helbers and Goedewaagen (1942: 19) note that ca.1760 - as indicated below foreign pipes were banned in Norway in January 1759 - 20,000 gross short-stemmed pipes were still being exported to Norway but that by 1789 the trade was virtually non-existent; however, the unpublished Gouda pipemakers' guild records indicate that the northern trade - presumably Scandinavia and the Baltic - was still a good market for the long-stemmed and best-quality pipes though it was difficult for Gouda makers to compete, partly because German-made pipes from the Rhineland and Stettin were plagiarizing Gouda marks and partly because these centres could produce at lower prices due to a lower standard of living. By this time, as is noted below, the native Scandinavian industries had largely sunk into obscurity, so presumably the market once more existed to be filled by foreign pipes; the major reason the Dutch were unable to regain it was therefore the widespread and cheaper German pipemaking industries.

Until the middle of the C18 the majority of pipes used in Norway were English or Dutch. The fact that Danish pipes, much more easily available and manufactured within the kingdom of Denmark-Norway, did not dominate the market as might have been expected no doubt indicates the superiority of English and Dutch pipes and the willingness of Norwegian smokers to pay more for them.

In 1751, however, Jacob Boy, a prosperous and well-travelled merchant and local minor official of Bragernes, Drammen, ca.20 miles SW of Oslo, applied for a royal licence to manufacture clay pipes. Taking advantage of the growing popularity in Scandinavian countries of a mercantilist policy (see also Sweden and Denmark below), Boy claimed that by manufacturing pipes he would be employing local labour and keeping money from leaving the country both by selling a native product and using local clay (from Blefjell in Telemark, SE of Drammen). In return he asked for a number of privileges, the chief being that he and his heirs should be given a 20-year licence, that foreign clay imported by him should be free of duties (an admission that the local clay was not going to be satisfactory), that if he found suitable employees locally he could exempt four from military service, that his licence be extended to cover all Norway when his factory was in full and successful operation, and that a large duty be placed on foreign pipes after he had proved himself able to supply the whole country. This would appear to be the first serious effort to make pipes in Norway.

The licence was approved with minor modifications in December 1751, at which time Boy was in Germany. The factory appears to have been producing soon afterwards however, for in June 1753 Boy is asking for the promised tax to be put on imported pipes. Almost immediately afterwards, however, Boy is asking for a complete ban on imported pipes in the local diocese. Citing the continued importing of pipes, his own pipe stock building up faster than it was being sold, the financial disaster to himself and his skilled foreign workers - brought in at great expense and some of them now married and with families - and to numerous local workmen if he could not make his venture a success, Boy followed this by asking for the ban to be extended to other dioceses and finally to the whole of Norway. (The reference to foreign workers, like the earlier one to foreign clay, indicates some of the difficulties of starting a native industry such as Boy was trying to do.) After considerable agitation Boy was successful and a total ban on the import of foreign pipes into Nowary was decreed in January 1759.

By this time another problem had arisen. Boy's licence, which he had originally asked to be for 20 years, had been reduced to one of ten years and this meant Boy would no longer have exclusive rights to pipe production after 1762. It appears, however, that Boy found supplying the farther-flung areas of Norway with pipes unprofitable and he expressed no desire to continue his monopoly to these places - quite the reverse in fact - but he was anxious to maintain his monopoly in the local diocese of Akerhus, noting that 50 people earned a living from his factory, 30 of them working there daily.

However, by this time the government was no longer so interested in industrial experiments and in assisting manufacturers and took no action on Boy's request, allowing one Kund Rist, who already had a monopoly to produce crucibles in Denmark-Norway, to expand into pipe-manufacture. By 1768 Rist was producing pipes at Hesvik near Drøbak, 18 miles south of Oslo and on the opposite side of the Oslo Fjord from Drammen, as a result Boy seems to have begun to lose interest in his pipe-factory and to have turned to other interests, though the ban on imported pipes continued. In 1766 there were a number of advertisements indicating the sale of the business together with all equipment and a house as an optional extra. The factory was noted as having steady workers. It was not sold, however, until 1770, and its subsequent history is obscure, though it was apparently still producing pipes as late as 1788, for a reference in that year mentions pipemaking at Kristiania (now Oslo), Moss (ca.35 miles south of Oslo), and Drammen. Another article of about this time refers to the Drammen industry as the remnant of a once-larger industry now employing only a man, a woman, and an apprentice. At this time the pipes were sold mainly in Denmark. At the time Pettersen was writing (ca.1940) an 89-year old descendant of one of Boy's pipemakers still lived in a house in the pipemaking quarter which was unchanged from the time of the pipemaking industry and which had formerly had an attic-full of pipes.

The pipes described from the excavation of Boy's factory reflect accurately contemporary English and Dutch styles, clearly indicating the imported models available to Norwegian smokers (Pettersen and Alsvik 1944: 31 and 33 - Dutch - and 35, 37, and 39 - English). As is noted below, the same holds good for Danish- and Swedish-made pipes of the same period. In 1767, a year after Boy had first advertised the sale of his business and presumably at a time when production had declined from that of earlier days, a catalogue listed 13 types of pipe made, two specifically called Dutch and four English. Excavations yielded approximately that number of recognizable types. Maker's marks used on the heel and base of Boy's pipes (ibid. 51) generally resembled Gouda-style marks, including the use of objects such as a hand or a sailing-boat. Marks were also placed on either side of the heel, as with English pipes of the period, although one mark, a shield surmounted by an inverted B may be a plagiarization of the Gouda coat of arms surmounted by an S used by Gouda makers to distinguish their "ordinary" quality pipes (see Section II above). One pipe found during the excavations (ibid. 31) had the Gouda arms, the letter S, and the saw-toothed rouletting stem decoration typical of Gouda pipes - it may have been a genuine Gouda pipe, either an example used by Boy for making copies or a casual find unrelated to the Boy factory. (Two C17 pipes of Dutch type (ibid. 29) were also found during the excavations). The most interesting marks used by Boy, however, were stem marks comprising bands of saw-toothed rouletting edged with the words JACOB BOY at one end and DRAMMEN at the other (ibid. 41), a precise immitation of a practice known in C18 and C19 Gouda (Wylie 1968: 24-7, fig 19b; Humphrey 1969: 20, 19 fig 13c); and the use of the famous TD motif on the bowl facing the smoker as in English pipes from ca.1755 to ca.1800 (I. Walker 1966a) but with the letters IB for TD (Pettersen and Alsvik 1944: 41). Glazing of the mouthpiece - with a blue glaze - occurs on some specimens (ibid. 47), and the 1767 price-list has one style - English - with a blue-glazed mouthpiece.

An inspection in 1754 recorded Boy's factory had a master, five journeymen, four apprentices, six young women, and two labourers. The labourers sorted and cleaned the clay and did general daily chores; the trainees made the rolls; the journeymen moulded them; while the women trimmed, polished, and marked the pipes. The journeymen, who were paid piece-rate, appear to have been foreigners judging by their names - some of which are probaby Dutch - and were able to mould six gross normal-sized pipes each a day. (This is almost double British production rates, but the British figures are based on the entire manufacturing cycle, not just the moulding - it still, however, represents half a gross an hour if a 12-hr day was worked, or over one a minute). The five journeymen thus produced 180 gross pipes a week or upwards of 9,000 gross in a year. In addition, the four apprentices worked under contract for a fixed wage for a number of years and after the first year were said to be as good as the journeymen, so that with their production added, the kiln, which held 380-1/2 gross normal-sized pipes, could be fired once a week. The master appears to have been responsible for overseeing the work of the factory.

Boy's chief problem was that even with his monopoly to sell pipes throughout Norway it was not financially practical for him to sell them in centres where expensive transportation was needed - Trondheim, Bergen, and Kristiansand, for example. Consequently he was unable to sell enough to justify his ambitious production programme. His large staff contrasts markedly with the man, woman, and apprentice noted earlier carrying on the remnants of his business in 1788; indeed in 1790 there is a reference

(Minchinton (ed) 1957: 62) to Bristol pipes being shipped to Langesund ca.60 miles SSW of Drammen (see also 6: VIII (a)(2).)

Some details of the manufacturing techniques used are also given in Pettersen and Alsvik; these are described in 2: V.

There had been unsuccessful attempts to set up a pipemaking industry in Stockholm in the C17, where among others two Dutchmen had been granted privileges in 1650, but the Swedish market for pipes was met almost exclusively by imports from England and The Netherlands until the middle of the C18, when a ban on imported pipes enabled Swedish makers to have some success.

In 1638 the Swedes colonized New Sweden (the present Delaware and southern New Jersey) and amongst their cargo loaded at Gothenburg (Göteborg) was tobacco-pipes. This settlement was actually organized by Dutchmen for the New Sweden Company, the former having been instructed to buy goods suitable for trade from The Netherlands (Omwake n.d.: 8, citing C. Ward's The Dutch and Swedes on the Delaware 1930, p.86) so that there is little doubt the pipes listed would have been Dutch.

In the middle of the C17 the Swedish poet Georg Stiernhielm in his poem Hercules, written ca.1647 and published in 1658, talks of the "chalky white pipes of Brabant," which probably refers to Dutch pipes. One pipe which is certainly Dutch and datable to the later C17 (cf Friederich 1964c: 61 fig 3; 1964d: 4; Pratt in litt. 25 January 1968) is illustrated by Puktorne (p.65 fig 1a). (The term kritpipor, chalk pipes, is the Swedish for clay pipes, but it is not a term of great antiquity, for C17 and C18 customs-documents usually call them simply tobacco-pipes. The term kritpipor refers entirely to their colour, not to their composition. Similarly, the analagous Danish term kridtpiber does not appear until the beginning of the C19, the terms "tobacco-pipe" or "clay pipe" being used before that time (Kristensen 1959: 80). The Norwegian term is krittpiper. In fact red and black clay pipes - of unspecified date - have been found in Sweden at Varberg and at Halmstad, a port south of Varberg (Puktörne 1968: 64 and n.8).)

A duty on imported pipes is recorded in 1639, but with the exception of the year 1685 import figures for pipes are available only from 1718 until 1748, the year after the Swedish government's ban on importing pipes, and even then figures are not available for every year. Further, the breakdown of these figures into English and Dutch imports is available only from 1738. With the exception of 1720, in which year over 14,000 gross pipes were imported, the amount varies between 5,000 and 10,000 gross up to and including 1741. In 1742 there is a drastic reduction to 525 1/3 gross, and though the figure climbs to between 1,100 and 2,100 gross in succeeding years the market is closed by a decree of 6 November 1747 and the last import figures record two gross Dutch pipes arriving in 1748.

Puktörne gives no explanation for the reduction in imports in 1742 and following years, but it seems likely that a heavy duty was imposed on imported pipes at the beginning of that year. From 1738 to 1742 English pipes are imported in approximately twice the amount that Dutch pipes were, but from 1743 to 1748 there is a marked preponderence, proportionately speaking, of Dutch pipes, and from this it seems possible that the presumed duty imposed in 1742 affected the importation of English pipes more adversely than it affected that of Dutch pipes. (The period from 1738 to the outbreak of the Seven Years' War in 1756 was one of steadily-worsening relations between Britain and Sweden, the British representative in Stockholm being withdrawn in 1741 and again in 1748. During the first half of the C18 there was also in Sweden a growing policy of mercantilism - touched on by Puktörne p.74. The uncertain trading-relations between Britain and Sweden during this period are discussed, with reference to the trade from Sweden in iron-ore, by Ashton (1924: 108-21, 1963 ed).)

The figures for the period 1738-47 also indicate that there was a small - only three times over 100 gross - but persistent importation of pipes from a source or sources other than England and The Netherlands. These pipes may have come from north France, but more probably from Germany - as already noted, the Gouda trade with Norway and Hamburg was almost entirely killed between ca.1760 and ca.1790 by the expansion of the German pipe industries.

In 1746 a pipe industry was set up at Nolhaga, on the outskirts of Alingsås NE of Gothenburg, employing 79 workers; and this factory and one in Stockholm were the only pipe-factories in Sweden in 1747, the year in which the ban on imported pipes was passed (Puktörne pp76-7 says 1757 but this appears to be a misprint). Not surprisingly, the ban on foreign pipes stimulated home production, and by 1755 there were four factories in Stockholm and the one at Alingsås; by 1758 the total had risen to 11. As well as the five mentioned previously there were two at Norrköping (SW of Stockholm) and one each at Falun (NW of Stockholm), Arboga (west of Stockholm), Karlskrona (on the south Baltic coast), and Varberg (south of Gothenburg), of these six were founded in 1757 and 1758.

The factory at Varberg was set up in 1756 partly because it was said that the pipes sent to Varberg - from Alingsås, some 80 miles away - had to come mostly by land and that as a result the greater part of the shipments arrived broken and damaged. The factory, which was built on the outskirts of the town to reduce fire danger, was not, however, a successful venture, and ceased production sometime between 1770 and 1783. Figures for the years 1758 to 1764 inclusive and for 1766 indicate an extremely low production - only in 1764 when 2,000 gross were made and in 1766 when 1,700 gross were made did the annual figure exceed 1,500 gross - otherwise the annual output was between 1,000 and 1,500 gross. The staff comprised the bruksmästare (factory-manager) or pipomakare (pipemaker), a "pipemaker's apprentice" and a total of about 10 others formed of varying proportions of "trainees", "others", and "boys and womenfolk". The "apprentice" appears to have been more of an assistant manager or pipemaker; the others must have comprised rollers, moulders, trimmers, and general helpers such as packers. Considering Houghton, talking of English pipemakers working at the end of the C17, noted that six workers - presumably the staff of a small business - could produce 60 gross pipes a week, even 2,000 gross a year is a low production rate for the size of staff involved at Varberg, for that yearly figure gives a weekly rate of ca.48 gross. No information is given as to possible sources for the clay used by Swedish pipemakers, but Puktörne notes that the clay of the Varberg pipes was much coarser than that of the Gouda pipes found during excavations at the fortress of Varberg and that this led to difficulties in moulding and a much less evenly-finished product.

Despite the initial spread of pipe-factories in Sweden following 1747 it appears that as an industry pipemaking was not successful, though pipes appear to have been sporadically produced until the end of the C19. As noted when dealing with Swiss metal pipes, iron pipes were being used in Sweden (Godet 1898: 131, fig 1), Norway, and Lapland (Lejeal 1897: 279-80, fig 8) as late as the ends of last century, but it is not clear whether they were commonly used or a local product made in remote areas.

The pipes produced at Alingsås and Varberg are interesting in that their bowl shape (FIG 129) is a direct copy of Oswald's London-Home Counties type 9 bowl shape. Their makers' marks also have affinities to those of English makers, for they incorporate the initials of the factory-manager or pipemaker, something which is almost never recorded at Gouda though it was standard practice among English makers. According to Puktörne, these marks occur "on the side of the bowl, above where it joins the stem", but his illustrations do not indicate precisely where. Some Dutch pipes seen by this writer have their mark on the side of the bowl almost at the base; if, however, the mark occurs higher up the bowl side it could be similar to the distinctive Bristol mark where the maker's name or initials occur in a cartouche, a form which first appears in Bristol at the end of the C17 and is particularly popular during the first half of the C18 (see Appendix IX passim; cf also discussion in 6: VII(a)(2)). The pipes most commonly made at Varberg appear to have been what is called the "smaller sort" and had a stem length of about four ins. The decoration on these stems were bands of slightly wedge-shaped dashes lying parallel to the line of the stem and encircling it, and encircling bands of open contiguous dots. This type of decoration appears to be Dutch-derived (for a discussion of English and Dutch stem decoration see I. Walker 1971c: 82-5).

From the evidence of the pipes made in these two Swedish centres it seems likely that English pipes had a greater influence in determining Swedish taste than did Dutch, for the English bowl shape was adopted in preference to the Dutch. This suggests English pipes reached Sweden in greater numbers than did Dutch pipes, and it is thus likely that the import figures for the period 1738-42 which indicate during that time approximately double the number of English pipes to Dutch represent the import trend for a considerable time previously. London and the East Coast ports would be the obvious places to ship pipes to Sweden and the bowl shape adopted by the Swedes, as noted above is a London-area form, but in view of Bristol's Baltic trade (see 6: VII(b)(1) it is possible Bristol pipes reached Sweden - Bristol pipes were reaching Norway in 1790 (see above, also 6: VII(b)(2).

As already noted, there is evidence that tobacco was being smoked and pipes being made in Denmark from early in the C17, and that by the mid-C17 smoking was widespread.

It is not until the middle of the C18, however, that a native pipemaking industry begins to emerge. The first known pipe-factory, and the only one recorded during the second half of the C17, was in Copenhagen, and though its owner was granted a monopoly to supply all of Denmark and Norway the business lasted only from 1672 to ca.1675. Most pipes used in Denmark prior to ca.1750 were imported, in earlier times from England and latterly from The Netherlands. Pipes were also imported from Norway (see above). English pipes of mid-C17 date have been found (Kristensen p.89 fig 4 - they are slightly earlier than the caption indicates), and an engraving of 1762 (Kristensen p.81 fig 2) shows an example of Oswald's type 9.

From ca.1740 onwards, however, a number of pipe-factories were set up, some of them by foreigners. A Salomon Burton, an Englishman, set up a factory in 1747 in Copenhagen and was joined in 1751 by a Peter Appleby. Appleby was actually a ropemaker who joined Burton only for a short time to help him get his business going; Burton produced in Copenhagen typical London-style bowls of Atkinson-Oswald type 25 - the London variant of Oswald's type 9 form - with typical London marking of his initials one on either side of the base, upright (Atkinson in litt. 11 April 1972). (A Walter Burton pipemaker died in London in 1665 (Oswald 1960a: 62), but no reference is noted to a Burton working in England in the mid-C18.)

In 1762 one Johan Cornelius Rømer came to Denmark from Muhlhausen in Germany and became master-pipemaker at the factory established that year by the Grocers of Copenhagen, leaving it two years later to start his own business in the same city. Unfortunately, it is not known from which Muhlhausen in Germany Rømer came: there are at least three - a small town NNE of Nürnberg (Nuremberg) in northern Bavaria, a small town west of Elbing in East Prussia, and a much larger town NW of Erfurt in Thuringia, East Germany. None of these is near the Westerwald nor any other known German centre for clay pipe production. (There is also Mülhausen, the town now known as Mulhouse in southern Alsace, which however had been French since 1648. Northern Alsace, which became French in 1681, was a pipemaking area by this time, using local deposits of clay (Section V above, also 2: IX).) Between 1749 and 1768 there were various short-lived attempts to assist the growth of the Danish industry by prohibiting, or limiting by custom duties, the importation of pipes, but this never became completly prohibited as it did in Sweden at this time.

A major problem for Danish pipemakers was that imported pipes, particularly Dutch, were of such a high quality and had established such a reputation that it was difficult to match them. Further, there was a dearth of good-quality clay, which as a result had to be imported from England to The Netherlands. However, the Danish island of Bornholm in the Baltic did have deposits of a superior clay, (cf Howe 1914: 75-7), and in 1753 a maker proposed to establish a pipe-factory at Odense using this clay. Later, in 1791, an Englishman James Davenport set up a pottery and pipe-factory on Bornholm (cf Mankowitz and Haggar 1957: 297) where Davenport is noted as working in 1789 producing cream-coloured earthenware; it is not known whether this James Davenport was a relative of the famous English family of pottery manufacturers of this name - he appears slightly earlier than that family's rise to prominence from 1793 onwards (Mankowitz and Haggar 1957: 67).) (Pettersen and Alsvik (1944: 38) mention that although there is no evidence that Boy's pipe-factory at Drammen, Norway, imported its clay from Bornholm, a later-established Norwegian factory - whether a pipe-factory or not is not stated - used Bornholm clay. This must have occurred towards 1800.) That pipemakers in Denmark had mastered the technical aspects of making good clay pipes is suggested by the variety of sizes they were able to produce in the second half of the C18 - by 1762 pipes with a stem length of 30 ins if not longer were being produced.

About 1772 Johan Adolph Rømer, son and apprentice of the Johan Cornelius Rømer noted above and like him, born at Mühlhausen, opened a pipe-factory at Nørresundby, where a local deposit of "blue" clay was useful for saggars and kilnware. The factory continued into the C19 but appears to have been closed by 1813, and the building remained standing, though somewhat altered, until becoming derelict in the 1950s. Prior to the building of a modern housing complex on the site in 1958 an archaeological and architectural examination was made and evidence for the types of pipe made and of the firing methods used was found.

Thirty-four different styles of pipe-bowls were recovered, 17 being in the Dutch style, 7 in the English, and 10 in a mixed style. The excavator believes still more styles must have existed. Five of the bowls - all in the Dutch style - were plain; the rest were ornamented, either in the form of effigy pipes with the face towards the smoker or with fluting or with scroll decoration. The pipes came with and without heels and spurs. All the English- and mixed-style bowls had spurs; the Dutch-style bowls had heels or spurs, or neither. The spurred types, with one exception, had A and R on either side of the spur; the exception had three dots on one side. One type with neither heel nor spur had A and R on either side of the bowl. Of those with heels, some had no mark, some a star on the base of the heel, some a 7 inside a C (apparently standing for Christian VII), some AR on one side of the heel with a motif of dots and small circles on the other. Ornamented stems were also found, some stamped I.A. RØMER NØRESUNDBY or simply NØRESUNDBY (in the inscription the town is spelt with one "r" and the "ø" in both the place- and maker's name has the slash angled in the opposite direction to that shown here). It is interesting that Rømer should have been producing so many ornamented pipes before 1800, for it is in line with the evidence (noted in 1: II(h)) that similarly-decorated pipes were appearing in England from ca.1780 and in The Netherlands from before 1771 (Rømer's pipe styles are illustrated in Kristensen figs 19-25).

Rømer also produced glazed pipes, with stub stems ca.1-1/2 ins long to which was presumably fitted a wooden stem. The glazes used were produced in a number of shades of green, blue, and brown. In Rømer's case at least, such pipes do not appear to have been glazed in order to disguise inferior clays used, for his glazed pipes were more expensive than his unglazed.

In 1776 there were monthly firings, giving an annual production of 1,000-1,200 gross pipes a year; later there were more frequent firings, and production in 1802 was up to 5,000-6,000 gross a year. The 1787 census listed the following at the factory: Rømer, his wife and daughter, his father Johan Cornelius Rømer noted earlier as a pipemaker, his stepmother, and six servants, one of whom was listed as a journeyman. How many of the servants other than the journeyman were associated with the manufacture of pipes is not stated, but presumably one or two were, and probably the father and other members of the family assisted in some way. The production figures given, however, do not suggest a large business. One thousand two hundred gross pipes a year is ca.23 gross a week or just under 4 gross a day. On the evidence of British production, the average daily output of a single moulder plus a trimmer was three to three-and-a-half gross a day, which suggests Rømer had at the most two moulders working. This in turn would suggest one trimmer, probably a woman (the usual proportion of trimmers to moulders being one to two), and one or two men to prepare the clay and load and unload the saggars and put them in the kiln, and probably another woman to pack the pipes for shipment. Six thousand gross a year is ca.115 gross a week or just under 20 gross a day, which suggests possibly six moulders were employed. This would suggest about three trimmers, and the usual extras to prepare clay, supervise the firing, and do the packing. The two sets of production figures are for 1776 and 1802 respectively, while the census figures are for 1787: by 1787 production was probably about the same or perhaps a little higher than that recorded in 1776, for the size of the household in 1787, assuming most of those listed were involved in pipe production, would indicate this; on the other hand, the production figures for 1802 suggest that there must have been a larger household by that time.

In 1796 it was estimated from trade figures that between one and four dozen pipes were used per year by people in Denmark or one to four pipes a month - as English figures for the beginning of the C18 (see 1: I) suggest that a smoker used three or four pipes a week, the Danish figures either indicate less pipe-smoking in Denmark than in England or else a gross average obtained by dividing the number of pipes produced by the adult, or perhaps entire, population.

SECTION VIII:
UNITED STATES OF AMERICA

As noted in Section III above, the East-Central European tradition of the stub-stemmed earthenware pipe, probably deriving in the first half of the C17 from Turkish originals, came to North America with the "Moravian" settlers who established themselves at Bethabara, North Carolina, in the early 1750s and there produced this form of pipe for over 100 years, leaving indeed a tradition of their manufacture which is not yet completely dead in that area.

The spread of stub-stemmed pottery pipes throughout the United States as a distinctively American style of pipe had not yet been studied in any detail, though this writer attempted a preliminary overview (I. Walker 1971a) in which a spread from a Bethabara origin was tentatively suggested, a suggestion which subsequent evidence (see 2: VIII) would now alter. It seems at least likely that a presumably indigenous development of the pipe-form had occurred among white settlers in the Pamplin area of Virginia before the 1740s, some two decades before Gottfried Aust came from Upper Saxony to settle at Bethabara as the town's potter and pipemaker in 1755. Further, Aust had worked at the pottery at Bethlehem in Pennsylvania, a Moravian settlement dating from 1741, for ca.10 months in 1754-55 before going to Bethabara, and while no work has been done on Pennsylvanian Moravian pipes, stub-stemmed pipes were definitely being produced in the Pennsylvania Deutch area of Bucks County, immediately SE of Bethlehem, at one time. Certainly, if the stub-stemmed pipes found at Hanna's Town immediately north of Greensburg in SW Pennsylvania, 25 miles ESE of Pittsburg and almost 250 miles west of Bucks County (Mary L. Fields, "Sifting the Ashes for Hanna's Town", paper presented at the spring 1972 symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state), do belong to the period of that settlement, they must have been available to settlers in that area of Pennsylvania by the last quarter of the C18, for Hanna's Town was founded in 1773 on a site where there was already a tavern and one or two houses, and after 1787, when Greensburg became the county seat, it gradually became farmland (see also Grimm 1972). Certainly, in the early C19 German settlers from the Bucks County area moved to Ohio where pottery was being made in the Akron area by 1828 and stub-stemmed pipes were being factory-produced by the mid-1840s (C.D. Blair 1965: 2-3). Immediately before 1880 an Akron, Ohio, firm, the Akron Smoking Pipe Company (see p.209 above) set up a subsidiary in Pamplin and also had another factory in Virginia, at Hampton. Much farther north, in Massachusetts, a Shaker community was producing this form of pipe by 1795 (L.W. Watkins 1950: 93); another Akron firm, H.J. Ayres and Company, advertised on their billheads of the 1870s that they manufactured "Wood, Clay and Enameled Smoking Pipes; Also, All Styles of Shaker Pipes" (C.D. Blair 1965: 30 illus), but no description is given of these last.

From this widespread eastern United States base, stub-stemmed pipes followed the opening of the American Mid-West and West. They are known from Michigan, Indiana, Illinois, Kentucky, Mississippi, Louisiana, Minnesota, Arkansas, North Dakota, South Dakota, Nebraska, Oklahoma, Montana, Idaho, Wyoming, Colorado, New Mexico, Washington state, Oregon, and California; and they were certainly being made last century in Texas. In the East, they have been recorded from New York state, New Jersey, Maryland, Georgia, and Florida; they have also been found at the other end of the continent, in Alaska (for a list of sites see I. Walker 1971a: 29-31 and refs, to which should be added Quimby 1942; Bullen and Bullen 1945; VanStone 1955; Lenik 1965; 1967a; J.P. Wilson 1967; M.L. Wilson 1968; Heite and Batte 1968; Cresthull 1969; R.L. Wilson 1971; Kelso 1971; MacCord 1971; Thomas and Burnett 1972; Michael 1972; Hamilton and Hamilton 1972; Bray 1972; Murphy and Reich 1973; Moore and Stinson 1973; Brose and Essenpreis 1973; Wray 1973; C.S. Bartlett 1974; Petsche 1974; Chance and Chance 1974; Murphy 1974; Fairbanks 1974; Hoffman and Ross 1974b; 1974c; Ferguson 1975b; also Hagerty in litt. 27 January 1969 referring to finds at Fall Brook, Geneseo, 27 miles SSW of Rochester, NW New York state (same site as in Wray 1973 above) and at Brewerton, at the west end of Oneida Lake, 13 miles north of Syracuse, upper New York state; Zimmerman in litt. 14 March, 13 September, 12 November, and 25 November 1974 referring to two examples from northern New Jersey bearing the name J.M. WATKINS on the rt side of the stub stem; and Mary L. Fields, "Sifting the Ashes for Hanna's Town" (see above), paper presented at the spring 1972 symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state) (with reference to the Watkins-marked pipe, it is almost unknown for stub-stemmed pipes to carry names; the only other examples known to this writer are one with LEWIS on one side of the stem and CASS on the other side from Fort Vancouver, Washington state (Caywood 1955a: 59, 60 fig 16 "knobby" pipe btm centre but not shown with names), and some manufactured by the Akron Smoking Pipe Company of Ohio (see p. 209 above) with FINZER on two of the six facets of a stub stem (Murphy 1974: 248). However, the letters N and D on the left and right sides of a bowl from the Point Pleasant kiln-site and another with the same letters but on opposite sides of the bowl (probably a mouldmaker's error) no doubt refer to Nathan Davis, one of the owners of the Point Pleasant kiln (Thomas and Burnett 1972: 28 fig 8-i, SP-2 and SP-3; 8, 6-7). A third initialled bowl from the Point Pleasant site bore uncertain letters, possibly T and J or J and T, on its sides, but these could not be identified with any known owner of or worker at the site (Thomas and Burnett 1972: 28 fig 8-i, SP-1; 8).)

Some of these finds are definitely of Pamplin-made pipes and others probably are (cf Hamilton and Hamilton 1972: passim, esp. pp5, 6 and refs; also Humphrey 1969: 25, 24 fig 28; see also pp 205-6 above). Thomas and Burnett in their report on the Point Pleasant kiln-site in extreme southern Ohio (Thomas and Burnett 1972: 12-13 and refs) have identified probable Point Pleasant pipes widely in the western states (cf also Humphrey 1969: 24 fig 27 and Thomas and Burnett 1972: 27 fig 8-h examples PL-4 and PL-5). Two stub-stemmed pipes from Fort Union, New Mexico, illustrated by R.L. Wilson (1966) have been identified as products of the Akron Smoking Pipe Company of Ohio (Murphy 1974: 248) (Murphy also identifies five Fort Union pipes with Point Pleasant types, and notes that at least seven others are closely related to Point Pleasant types - his Point Pleasant site, though identified with the Akron Smoking Pipe Company's site, may however be the same as

Thomas and Burnett's site, though he is apparently unaware of the latters' investigation and report)[15]

Identifiable Bethabara pipes, on the other hand, are rare so far: at one time they certainly formed part of a major trade both to Indians and to white settlers in the eastern United States (Bivins 1972: 174; South 1965: 49; Albright 1958: 18) - reed pipe-stems were being sent from Bethabara as far as Philadelphia at the beginning of the C19, which suggests Bethabara pipes must also have been traded that far - but there are no records of the distribution of these pipes. MacCord (1971: 104) notes a fragment of a possible example from the Lipes site in western Virginia, ca.23 miles NNE of Roanoke, but otherwise the only occurences in archaeological contexts known to this writer of what are almost certainly Bethabara pipes is one from the Fall Brook site at Geneseo, upper New York state (Wray 1973: fig 15-6) and a whole example and fragments of several more from the underwater excavations carried out recently by the Research Division of the National Historic Parks and Sites Branch in Ottawa on a French supply-ship, the Machault, in the Baie des Chaleurs on the Quebec-New Brunswick border in Canada (in Research Division's collections in Ottawa). The Fall Brook site is dated by Wray to ca.1750-79, while the Machault was sunk in 1760: if the pipes are indeed Bethabara-made, these dates would indicate they were certainly products of Aust; and their excellent-quality moulding and extreme similarity to the Aust products illustrated by South leave little doubt as to their Bethabara origin. The Fall Brook site pipe can most easily be explained as having come by trade from one of the northern centres to which Bethabara pipes were traded; those from the Machault raise more intriguing problems, for the ship was en route to Montreal in an attempt to relieve the beleaguered French forces there - pending further research on the ship's cargo and previous ports of call, a possible explanation is that the ship or some of its crew had been in a southern American Colonial port.

Certainly, in the years following Aust's arrival in Bethabara in 1755, his pottery was widely traded, including at Charleston, a prominent Colonial port. Further, in 1807 a slaver leaving Charleston for the Congo included in her cargo "1 Box Pipes" (Donnan (ed) 1935: 567): the type of pipe is not stated and certainly a manuscript account of New England legitimate trade with West Africa at the beginning of the C19 lists English and Dutch pipes among the New England trade goods (G.E. Brooks 1970: 329, 334), but it is at least possible that pipes shipped from Charleston would have been local American stub-stemmed types rather than conventional European white clay pipes. Parenthetically, it may be noted that the American stub-stemmed pottery pipe might have been particularly acceptable to West Africans, whose own native pipes were stub-stemmed, usually decorated and certainly in the earlier examples painted, and of earthenware (e.g. Shinnie and Ozanne 1962: 99-103, figs 6-10; Ozanne 1963: 55-57, figs 1-3; York 1973: 35-43, figs 15-23 and Ozanne and York 1974: 199; Connah 1975: 179-80, 162 fig 49; cf also remark quoted in G.E. Brooks 1970: 92 n.25 that Africans, finding the European pipes too small, made most of their own pipes with extremely large bowls - the manuscript account of New England trade referred to above and dating to the beginning of the C19 lists at one point (Brooks op. cit. 324) "Pipes Common short, with large bowles").

Apart from the Machault pipes almost certainly made by Aust, only six

Canadian sites known to this writer have produced stub-stemmed pottery pipes, and these only rarely; and certainly for three of the sites there is sound historical evidence to suggest the pipes reflect contacts from the United States.

As two of the sites - an Hivernant-Métis site of the third quarter of the C19 in the Cypress Hills of extreme SE Alberta, where fragments of two such pipes were recovered (J. Elliott 1972); and Fort Walsh, 1875-83, also in the Cypress Hills but in extreme SW Saskatchewan, where the stem of one example and a probable bowl fragment was recovered in the 1973 excavations conducted by the Research Division of the National Historic Parks and Sites Branch - other archaeological evidence also indicated United States contacts and historical data showed the sites had been supplied through Fort Benton, ca.180 miles SSE in Montana. In fact, both major American trading-companies of the period, I.G. Baker and T.C. Power, established permanent stores at Fort Walsh, for until the trans-continental Canadian Pacific Railway reached the Canadian Prairies supplies for that region from eastern Canada had to be shipped through the United States (for the history of Fort Walsh see McLeod 1969).

At the third site, Lower Fort Garry in Manitoba, a Hudson's Bay Company post 20 miles NE of Winnipeg founded in 1830, where part of a bowl of a stub-stemmed pipe of a type also found at Fort Vancouver, Washington state, another Hudson's Bay post (Caywood 1955a: 59, fig 16 2nd btm line 2nd example from left labelled "knobby" pipe; Hoffman and Ross 1974c: 50), was found (in collections of the Reseach Division, National Historic Parks and Sites Branch, Ottawa), the sitation is essentially the same: the route north up the Mississippi and down the Red River of the North from St Paul in Minnesota offered substantial practical advantages - including a railway from 1878 connecting Winnipeg to the United States - than did any pre-Canadian Pacific Railway alternatives in Canada (for Lower Fort Garry historical background see D. Miquelon 1970).

At the fourth site, Fort Coteau-du-Lac, Quebec province, on the St Lawrence ten miles from the Ontario border, a stub-stem fragment was found during excavations by the Research Division of the National Historic Parks and Sites Branch in 1965-66. Fort Coteau-du-Lac was founded in 1779 and the military establishment there ended in 1851; the context of the pipe-fragment is unknown, but as the fort was built to defend a canal designed to circumvent the rapids on the St Lawrence here and as the canal remained the only way of taking goods upriver beyond this point until the Beauharnois Canal was completed in 1845, it is extremely likely the pipe-fragment came from an American traveller on the river; in addition, the Fort itself is only ca.20 miles from the American border (for brief accounts of the Fort Coteau-du-Lac excavations see Rick 1970; Folan and Ingram 1973).

At the fifth site, the Deadman site ca.35 miles west of Kamloops in British Columbia, most of an unusual stub-stemmed pipe, glazed and with a grotesque face, was found, and while little other artefact material was recovered from the site a date of ca.1860 has been suggested by the excavators (Miss L. Robinson in litt. 8 and 20 February 1974); and it is at least possible this pipe also represents the penetration of American trade north into Canada prior to the completion of the Canadian Pacific Railway in

1885 which tied the country together and allowed Canadian goods to flow west without being shipped through the United States for much of the route.

The sixth site is the Ermatinger House at Sault Ste. Marie, Ontario, on the St Marys River between Lakes Superior and Huron. The house was built in 1814, replacing the original structure of 1804, and was continuously occupied, apart from a short break in the 1830s, until 1967, when it was purchased by the Sault Ste. Marie Historic Sites Board. Excavations in 1974 produced almost a thousand clay pipe fragments, including two examples of plain stub-stemmed pipes of tan-coloured clay. Sault Ste. Marie is directly across the river from the town of the same name in Michigan, so that the occurence of a stub-stemmed American pipe at the Ermatinger House should occasion no surprise - C.O. Ermatinger, who built the house, was a trader first for the North-West Company and later for the Hudson's Bay Company (Reid *in litt.* 14 October 1974 and in conversation).

Through the kindness of Harold Zimmerman of the Friends of the Hermitage Archaeological Work Team (see Bibliography - Personal Communications) the writer received (at the spring 1975 conference of the Council for Northeast Historical Archaeology held at Bear Mountain, New York state) a stub-stemmed earthenware pipe made in Haiti. The pipe is of a pleasing polished brick-red colour and appears to have been made without the use of a mould; broad smoothing marks suggesting shaping with a blade are visible. The opening through the stub stem has been made by inserting a pointed tool about the size of a large pencil. The bowl opening may have been either scooped out with some tool or fashioned with a plunger type of tool; in any event, it has been relatively roughly finished off by inserting some tool and partly turning it, and the bottom of the bowl opening shows the use of some pointed object. Apart from its polish, the pipe is decorated with two incised lines, one round the mouth of the bowl and the other round the end of the stub stem, and three bands of miniature knurling decoration - giving an appearance similar to the surface of a file - one running along each side of the stem and up the bowl and the third running along the bottom of the stem and up the front (i.e. the side away from the smoker) of the bowl. The decoration has been applied with a flat implement pressed on to the pipe surface. There is also an incision across the junction of the stem and bowl.

This pipe is mentioned here partly to note yet another area of the New World where these pipes occur - perhaps in this case with ultimate African origins - but mainly to observe that disappointingly this bowl bears no close resemblance to the Pamplin "Hayiti" bowl-form (see p. 205 and n.32) though some historical association between Haiti and the Pamplin products - export models particularly favoured there, perhaps - may yet be discovered (see now I. Walker 1975b).

CHAPTER 4

PIPEMAKING IN VARIOUS CENTRES

SECTION I:
INTRODUCTION

It can be seen from 1: V and VI that the spread of home-grown tobacco and the start of the Virginia industry appear to have happened simultaneously in the 1610s, and it seems reasonable to suggest that it was really from this time that smoking in England became a widespread habit. The rapid spread of the home-grown product and the phenomenal boom in the export of tobacco from Virginia clearly suggests this, the more so when one considers that prior to this only Spanish grown tobacco was available and not until 1604 was that obtainable legally. It seems likely that smokers at first fell into two classes - sailors who were able to obtain tobacco more easily than most, and people of fashion and social position in the capital and the university towns who could afford to buy tobacco. Typologically at least, the earliest pipes known in England are one found at Cambridge and two from London (Oswald 1959c: 201-11, 204 fig 3(14)-(17); 1960a: 42).

The monopoly given in 1613 to London to import tobacco was, like many other monopolies given to London companies during the earlier half of the C17, restrictive to Bristol's growth despite the widespread illegal trade which continued (Latimer 1900: passim), and it is fair to assume that the repealing of this monopoly in 1637 gave Bristol and the other ports a major boost. In the first half of the C17 London has vastly more pipemakers than all the other major future centres of production combined and it seems likely that London's advantage in the tobacco trade at least assisted in this. From the second half of the C17, however, Bristol pipemaking undergoes a very rapid expansion, which while only producing just over half the number of London makers known for the same period, gives a much higher proportion of pipemakers to the population of the city than does London. The second half of the century also sees appreciable numbers of pipemakers appearing in Broseley, Kingston upon Hull, and NE England. In the first half of the C18 the number of Bristol pipemakers continues to increase and indeed approaches the number known in London while Liverpool, Chester, and York show major increases in the number of known pipemakers. Thus while London was always numerically pre-eminent as a pipemaking centre, other centres became proportionately speaking more truly centres specializing in pipemaking. This broadening of the industry is probably associated initially with the widening availability of tobacco by the second half of the C17 following the withdrawal of the London tobacco monopoly - there is a noticeable concentration (Oswald 1960a: 43-4, figs 16 and 17) in this period of makers in Wiltshire, Somerset, and south Gloucestershire, the area of most intense home-growing of tobacco, as noted above. (The latest figures for pipemakers in various centres appear in Oswald 1970b: 227-8 - these supersede, and in some cases modify, conclusions in Oswald 1960a: 42-4, figs 15-17).

Before studying the Bristol industry in detail, however, the industries in other centres - chiefly Liverpool, Chester, Glasgow, Montreal and East London - all differing widely in time and background, are examined to see what, if any, common threads lie in the history of pipemaking areas.

SECTION II:
LIVERPOOL

Taking Oswald's list of English pipemakers (1960a: 55-102)[1] and noting the date Liverpool makers are first mentioned, we find one prior to 1700, between three and nine for each decade between 1701 and 1760, and then a dramatic increase for the period 1761-90. There is a fall during the period 1791-1810, then an increase between 1811 and 1830, after which the number of new names virtually ceases, though there is a slight revival in the 1850s. The detailed figures are as follows:

1701-10	6	1791-1800	7
1711-20	3	1801-10	9
1721-30	6	1811-20	13
1731-40	9	1821-30	11
1741-50	4	1831-40	2
1751-60	8	1841-50	0
1761-70	25	1851-60	4
1771-80	12	1861-70	2
1781-90	18	1871-80	2

These numbers are based on a single date: obviously many makers worked over a number of decades - for example, Oswald lists Thomas Birchall as working from 1817 to 1845 and Humphrey Lyon jr from 1761 to 1790; and James Atherton, noted by Oswald as dying in 1708, was working by 1678 (Chandler 1957: 333). The figures rely heavily on the accuracy of trade directories and other sources, and on the amount of research actually done; they often do not take into account whether the date given is that when a maker commenced work, or when he died, or any time in between, and they generally do not indicate how long a business survived. Further, they are biased by the arbitrary nature of the decades used in the preceeding table: for example, if each decade started only one year earlier (i.e. 1700-09 instead of 1701-10) the figures for the period 1770-99, while totalling the same as those for the period 1771-1800, would break down as follows:

1760-69	18	(1761-70	25)
1770-79	19	(1771-80	12)
1780-89	10	(1781-90	18)
1790-99	15	(1791-1800	7)

Similarly, while only two makers are first recorded in the decade 1831-40, seven are recorded for the decade 1830-39. As no new names are recorded during the 11 years 1840-50 it follows that five were first recorded in 1830. To anticipate a point made when discussing the Bristol burgess rolls (see 6: IV) it is likely that this reflects the drive made to find as many eligible voters as possible - in this case freemen - before the election year. Certainly in Bristol, once the guilds lost their control many craftsmen practiced their trades without taking their freedom, and often took their freedom only before an election and when forced or persuaded to. Alternatively, the source used - presumably a trade directory - may have been changed or brought up to date that year: a difference of five may seem rather large, but this writer found that with the change from the Glasgow Directory to the Glasgow Post Office Directory in 1828 the number of pipemakers rose from an average of two or three to a steady five and six; while three directories for Bristol in 1853 (two published by the same company) listed 17, 21, and 27 pipemakers there (Scammell and Co's Bristol General Directory..., Matthew's, and Scammell and Co's Gloucester, Bristol and South Wales Directory... respectively). A source of ca.1800 (quoted in Oswald 1970b: 228 n.6) said there were seven pipemakers in Liverpool at that time, a figure which at first sounds rather low, though as the source continues that they employed among them ca.120 men and women the seven "pipemakers" were clearly reasonably large firms.

However, it is clear from the jump in makers recorded from the 1760s onwards that Liverpool quite suddenly becomes an important centre for pipe manufacture during the second half of the C18. This is the more remarkable when one notes that throughout the C18 smoking declined, being replaced by snuff, a feature confirmed by a general decline in the number of pipe manufacturers known in England overall during the second half of the C18 (e.g. Oswald 1960a: 45, fig 18; 1970b: 227).

It is possible that, during this period of prosperity in marked contrast to the rest of England, mould-imparted names of makers and their place of work was introduced on stems by Liverpool makers, though conceivably it could also have come from Chester (Section III below). This feature (already noted in 1: II(g)) first becomes common shortly before 1800, but the earliest makers so far known to have used this idea are James Eaton of Liverpool F 1757 (assuming he is the James Eton noted in Oswald 1960a: 69) at least one of whose pipes occurs in a ca.1758-68 context at Louisbourg, Nova Scotia (Lindsay in litt. 8 November 1972 and in conversation) and William Morgan sr also of Liverpool working by 1767 one of whose pipes was found at Williamsburg, Virginia, in a sealed context of ca.1760-80 overlaid by material datable to the last quarter of the C18 (A. Noël Hume in litt. 11 August 1964). (Other James Eaton pipes have been found at Placentia, Newfoundland (Grange 1971: 532-3, 1963 fig 100d); elsewhere at Louisbourg (Hanson and Shott 1968: 39, 127 fig 32,F); and from Fort Beauséjour, New Brunswick (MacLean 1971: 39, 80 fig 30a).

Liverpool does not begin to expand as a port until the C17 - in 1634 when the ship-money tax was assessed Bristol was rated at £2,166 13s 4d while Liverpool was rated at only £15. Liverpool Puritans had to sail from Bristol to the New World in the early C17. Her growth was checked by the Civil Wars, 1642-48, but revived strongly in the second half of the century (except where otherwise noted, this section is based on VCH Lancs. IV: 16-37 - a convenient source but not accurate at all points - and Chandler 1957). The prime cause was trade in sugar, tobacco, and cotton with the West Indies and - illegally - Spanish America. There appears to have been relatively little trade with the American colonies until the C18 (cf I. Noël Hume 1963: 283, 284-5); Berry (1963: 5) notes that Liverpool trader Nicholas Blundell records in his diary supplying cargoes during the first quarter of the C18 for his brother who came across from Virginia two or three times a year.

Berry also notes (loc. cit.) that as early as 1674 the port records indicate pipes being exported through Liverpool, 1d being charged on every crate of pipes which was shipped to elsewhere in the country and 2d per crate for pipes going "into Forreigne Parts". In 1688 eight "creates" of pipes were shipped to Whitehaven from Liverpool (Weatherill and Edwards 1972: 166), and Willan (1938: 186, 1967 ed) notes pipes being shipped from Liverpool to Lancaster in 1690. These pipes need not, however, have been Liverpool-made, but could have come from centres of the industry such as Chester (discussed below), or Rainford where pipes were being made from about the middle of the C17, the earliest record of pipemaking there being of a maker who died in 1674 (Berry 1963: 1).

Subsidiary reasons for the rise of the port was the rapid development of Manchester industries; the relative safety of the port during the wars of the second half of the C17 (shipping coming by the north of Ireland and down the Irish Channel avoided most of the hostile fleets to the south) so that it paid, despite the costs involved (cf 5: I), to land goods at Liverpool and then use the extremely inefficient roads to the south; and the settlement of several London traders in Liverpool after the Great Fire of 1666 (Reddaway 1940: 245, 1951 ed; Mitchell and Leys 1958: 178, 1963 ed), though it was not until almost 100 years later - 1760 - that London-Liverpool stage-coaches were introduced (Latimer 1893: 309). In 1677 the Michaelmas customs returns listed only £3,500 for Liverpool compared to £51,000 for Bristol (Latimer 1900: 383). By 1701, however, it was being asserted that a proposed interference with the tobacco trade would "destroy half the shipping in Liverpool" and some satirical verse about the arrival of Customs officers to investigate duty evasion on tobacco, for which Liverpool was notorious in the early C18, claims Liverpool had eclipsed Bristol. This latter is an exaggeration, for in 1701 the number of vessels in the port was noted as 102, and this was still less than Bristol's total of 165, though 30 or 40 ships more than the number recorded for Liverpool only 12 years previously. By 1701 Liverpool was already importing cotton (Moffit 1925: 134).

In 1698 the monopoly on slaves held by the Royal Africa Company of London was ended (Lipson 1931: 357, 1956 ed), and both Bristol and Liverpool entered this trade, the latter in 1702 (Moffit 1925: 134). In 1730, 15 vessels were involved. In 1750, an Act of Parliament established an open company for African trade to which anyone could join on payment of 40s (Lipson 1931: 359-60, 1956 ed). Lists of members of the African Company for 1753 and 1755, though the figures differ considerably, show Bristol had appreciably more members than either London, which came next, or Liverpool, which followed (Latimer 1893: 271), though neither Bristol nor London appear to have been as vigorous in prosecuting their business as was Liverpool. As late as 1764 Bristol's customs receipts were over two and a half times those of Liverpool, being £195,000 as against £70,000 (Latimer 1893: 362); but in 1795, when an assessment of men to be found by ports for outfitting naval ships was instituted based on the number of vessels clearing port outwards, Bristol was only seventh with 666 vessels, London being first with 5,704 and Liverpool second with 1,711 (Latimer 1893: 514). The immense profit of the slave trade lay in the triangular trade, whereby cheap goods were shipped to Africa for slaves; the slaves taken to the New World, principally to Kingston, Jamaica; and sugar and tobacco brought back.

The C18 also saw a flourishing trade develop exporting Staffordshire slip-decorated wares and Buckley coarse earthenwares. The former are noticeably absent from Virginia in the C17, Bristol and North Devon pottery predominating, but it appears in the C18 (though the situation is complicated by the discovery (K.J. Barton 1962: 164-8) that Bristol was making very similar slip-decorated ware and that both centres were certainly exporting to North America). The distinctive coarse earthenware from Buckley in Flintshire, North Wales, was being exported in vast quantities from the early C18 until the Revolution (I. Noël Hume 1963: 283-5; 1970: 132-6; cf C.M. Watkins 1968: 126 and 128, 130 fig 65, 139 illus. 18 and 19). Other suggested reasons in favour of Liverpool's expansion was that it was a Whig town and from 1714 to 1762 there was a continuous Whig administration of the country, that sailors were paid little if any salary - this seems untrue (MacInnes 1963: 7) - and that woollen goods for export were cheaper here than elsewhere. Again, as in the second half of the C17, the relatively safe northern route to the port enabled it to thrive during the Wars of Spanish and Austrian Successions, 1702-13 and 1740-48, and the Seven Years' War, 1756-63.

The American Revolution, 1775-83, was disastrous to Liverpool's trade for a short time - in 1775 there was a week-long riot and during this time the population is said to have actually diminished. A quarter of the town's population of 60,000 was said to be living on charity (quoted in Latimer 1893: 415). However, 1778-82 saw Liverpool privateering rise as the French and Dutch entered the war; this ceased only because there were no more ships to capture, but by this time the destruction of the French merchant navy enabled Liverpool to capture their trade during the decade 1783-93. The Continental System and the War of 1812 with the United States and American privateers affected Liverpool adversely; but because all other shipping had been driven off the seas, by 1815 Liverpool had practically absolute control of the Atlantic trade. Concurrently with this, the Spanish American colonies were becoming independent, adding to the markets. In 1813 the monopoly of the East India Company was broken; the next year Liverpool ships were round the Cape. With the Lancashire industry in the immediate hinterland and canal transport available Liverpool at the beginning of the C19 had an almost unrivalled position.

The mushrooming of the port can be seen in both its population and its shipping figures. Gross tonnage of shipping went up from 19,175 tons in 1751 to 72,730 tons in 1787 to 129,470 in 1801; and the dock area doubled between 1756 and 1815 and again (Clapham 1926: 5) between 1825 and 1846. Population rose rapidly throughout the entire C18: from a figure of just under 6,000 in 1700 it had trebled by 1740, and more than trebled again by 1791 to a figure of 60,000. By 1827 this figure, even excluding the suburbs now springing up, had almost doubled to 118,000. The population figures are as follows:

*1700	6,000	*1770	34,000
*1720	8,000	*1791	60,000
*1730	12,000	1801	77,000
*1740	18,000	1811	94,000
*1750	22,000	1821	118,000
*1760	26,000	(* estimate)	

These figures indicate that from ca.1770 onwards there was a tremendous expansion in population; many of the immigrants were Irish and Welsh and the result of this dramatic rise was the widespread slums of the city (figures from Moffitt 1925: 140 and VCH Lancs IV, 33; cf Treble 1971: 167).

From this it can be seen that, as Oswald has suggesed (1960a: 45), the rise of the Liverpool pipe industry can be paralleled to some degree with the increase in the slave trade and in privateering, though the port had been expanding for a century before the pipe industry had its sudden expansion. Certainly by ca.1800 Liverpool pipes were being exported widely and especially to Africa (Chandler 1957: 340 and 345). The use of pipes in the Africa trade is known from other evidence - as late as ca.1780 special pipes known as hog pipes were being made in Chester for this trade (G.C. Spence 1942: 48-9) at a time when the importance of that city as an oversea port must have been negligible and the pipes must in fact have been shipped through Liverpool. Indeed, Liverpool makers may well have taken over this trade, contributing to the rise of their industry at this time: certainly in 1770 exports from Liverpool to Africa included 1,791 gross pipes (Donnan (ed) 1931: 596) - over 250,000 - indicating a major trade, and in 1767 eight barrels of pipes were included as part of the price of five slaves by a Liverpool ship (op. cit. 529)[2] The French also sent very large numbers of certain types of pipes to the Guinea coast with their slave trade (Duhamel du Monceau 1771: 4). Dutch pipes especially, and some English, ranging in date from the C17 to C19, have been found on a site in Ghana (Nunoo 1957: 16-17, pl III btm, additional photographs from author 23 May 1969, additional identifications Oswald in litt. 1 January 1969).

The earliest definitely-dated Liverpool pipes found in North America known to this writer occurred, as noted above, in a 1758-68 context at Louisbourg, Nova Scotia (Lindsay in litt. 8 November and 6 December 1972) and from a 1760-80 context at Williamsburg, Virginia (A. Noël Hume in litt. 11 August 1964), though other examples from Newfoundland (Grange 1971: 532-3, 1963 fig 100d), Nova Scotia (Hanson and Shott 1968: 39, 127 fig 32F), and New Brunswick (MacLean 1971: 39, 127 fig 30a) could all date as early as 1757. Other Liverpool-made pipes have been found in pre- or ca.1800 contexts in Canada - Nova Scotia (Omwake 1965b: 34-5), New Brunswick (I. Walker 1971d: 22-3; MacLean 1971: 39 and fig 30b), and British Columbia (ex info. R. Ingles, National Museum of Man, Ottawa) - and in the United States in Massachusetts (Hagerty in litt. 5 March 1969), Connecticut (Poirier 1974: 12), Virginia (Pawson 1969: 125), and North Carolina (Israel in litt. 5 August 1971). A Liverpool pipe is also noted at Port Royal, Jamaica, though in an unknown context (Oswald 1969: 69 no 18). These finds confirm Chandler's remarks that Liverpool pipes were exported widely at that time, and agree with the evidence noted above for the Liverpool industry's expansion from the 1760s onwards. Liverpool pipes of the first half of the C19 have been found in Newfoundland (Jelks 1973: 75), Ontario (ex info. Miss E.A. Wylie), and Quebec (material in National Historic Sites Service collections, Ottawa), and ones dating to the middle of the century have been found as far apart as Prince Edward Island, Canada (Davoud, now MacLean, 1969a: 11, fig 18) and California (Humphrey 1969: 17, 16 fig 8).

Liverpool pipes were also reaching West Africa as late as the end of last century or the earlier decades of the C20, for stems marked

H.B.W. Russell of Liverpool, who oddly enough is recorded in Liverpool trade directories not as a pipemaker but as an African merchant, have occurred on two sites in Ghana (Calvocoressi MS). (For a discussion of this marking of pipes with the supplier's name and not that of the maker, see p.160 above.)

However, it is difficult to believe the dramatic rise of the Liverpool pipe industry was occasioned solely by a sudden shift to Liverpool-made pipes in the city's export trade: it seems likely the nearly fourfold increase in population between 1770 and 1821 made an important contribution. Further, these people apparently wanted to smoke, and if this sounds self-evident it must be remembered that Liverpool seems to have been alone in this boom in the pipemaking industry, for as noted earlier the second half of the C18 saw the English pipe industry in general in a marked decline.

The basic reasons for the rise of the Liverpool pipe industry therefore seem to be a taking over by Liverpool makers of an export market previously largely held by Chester pipemakers, and a rapid rise in population which unlike in the rest of England included a large number of people who favoured smoking. Because of the imprecise method used to estimate the number of pipemakers in business each decade it is difficult to say whether the temporary lessening in new pipemakers noted in the decades 1771-80 and 1791-1810 (only a relative lowering of the numbers in any case) can be equated with economic events - the disruption of the New World trade by the American Revolution and the war with France could fit the former and the Napoleonic Wars and the abolition of the slave trade in 1807 the latter - although the number recorded for the decade 1811-1820 is still higher than that recorded for the decade 1751-60. The prosperity of the port does not decline - in fact the trade figures show a slow but steady increase into the 1850s and it is not until the 1880s that they begin to decline - nor does the population lessen: including now the suburbs which subsequently become part of the city, the population of Liverpool nearly doubled between 1841 and 1861, and 1840s seeing colossal numbers of Irish arriving either as permanent settlers or en route to North America (cf Lawton 1970: 404-5, 397 fig 9b, 398, 399 fig 10). The population figures are as follows:

1831	189,000	1871	493,000
1841	286,000	1881	611,000
1851	376,000	1891	617,000
1861	463,000	1901	685,000

The relative lack of pipemakers during the earlier half of the C18 may seem strange when the population increase during this period, albeit much less than that in the next half, is considered. However, as will be noted later, it was this time which saw Chester's major period of manufacture and it is likely that initially Chester was an adequate and convenient enough source for Liverpool.

Oswald, noting the numbers of pipemakers by half-centuries at Bristol, Chester, Kingston upon Hull, and London from sources available in 1959 showed (1959c: 202) that after rising throughout the period 1600-1750 the numbers declined in all four centres during the period 1750-1800 but that by 1800 the number in London had risen appreciably while in the other centres the decline was maintained to a greater or lesser degree. This, Oswald suggested, was a result of the industrial revolution affecting the population of London, and he also noted that at other industrial centres such as Birmingham the same increase is noted. Unfortunately, more up-to-date figures for these four centres (Oswald 1970b: 227) gives a less simple picture. The second half of the C18 does see a general drop in the number of clay pipe manufacturers, though possibly less severe than thought earlier (cf Oswald 1970b: 228), for Chester and Hull figures remain steady and the spectacular London drop - from 228 in 1700-50 to 60 in 1750-1800 - is partly accounted for by apprentice and freedom lists for the latter period being lost and the rarity of trade directories before 1800. Figures by half-centuries are tricky to use however, and may obscure declines which took place after, say, 1770 rather than after 1750. There is ample evidence, as noted above (Chapters 1 and 3), that smoking declined in its social acceptability in the face of snuff as the C18 progressed, and Oswald's figures for other centres (1970b: 277) as well as this writer's Bristol work indicate a widespread contraction of the pipemaking industry. Despite an undoubted increase in the number of pipemakers recorded in the first half of the C19 due to the advent of trade directories and other records, it still seems fair to say that the industrial revolution and the big industrial cities added to the revival of pipe-smoking.

This might seem to agree with the Liverpool evidence, inasmuch as demand in the form of a large population re-stimulates the industry. Bristol, Chester, and Kingston upon Hull, by contrast, are less affected by the industrial revolution than London and centres in the Midlands and northern England - none of them belongs to an area of heavy industrialization. (However, as will be shown, Bristol did have a resurgence of clay pipemaking during the period 1810-60.) Further evidence of this suggestion comes from Leicester (Daniell 1965: 59-60). Here, from a single pipemaker recorded at the beginning of the C19, the number steadily increases until in 1846 there are seven. By 1863, there are six, and by 1884 the number is down to three. The industrialization of Leicester, and an attendant rapid growth in population, occurs in the 1840s.

However, this might also seem to contradict the evidence from Liverpool, where clay pipemaking was declining after the 1820s and 1830s - appreciably earlier than in other industrial centres - but in fact this is more likely explicable as an example of different places being affected differently by local customs and habits. In other words, suggestions that the decline in clay pipe smoking was caused by the introduction of other forms of smoking, are true only in a general sense and in fact different centres were affected by different innovations in smoking, and indeed other factors, at different times.

An excellent example of this comes when comparing Liverpool's pipe industry with that of Rainford, only ca.12 miles away. At Rainford the peak of prosperity was during the first four decades of the C19, the very time that the Liverpool industry appears to have been contracting. At one time in this period there were over 30 shops and factories, with 20 families in business, in a village of 1,500 people. Some businesses employed over 50 people; others may have been extremely small enterprises, but even as late as the beginning of this century, when the Rainford industry was a shadow of its earlier self, one firm employed 50 men and turned out over 15,000 pipes a day (Berry 1963: 6, 8). Such prosperity indicates not only that clay pipe smoking continued to be popular, but that there was still a widespread trade in these pipes, no doubt to the rapidly-expanding industrial areas of Lancashire and west Yorkshire.

One stem-fragment marked RAINFORD has been found in Massachusetts, associated with material probably datable to the last decades of the C18 and the first of the C19 (Hagerty in litt. 4 February and 5 March 1969); and one marked H. RAINFORD was found in New Brunswick, Canada, in a context probably not earlier than the early 1860s (ex info. Miss E.A. Wylie and Miss D.L. Herst). Unfortunately, in both cases the preceding part of the stem had been broken off so that it was impossible to say what preceded "Rainford". No pipemaker of this name is recorded by Oswald, and the H. might be the end of a maker's name rather than his initial. Unfortunately, Berry does not publish any lists of Rainford makers; he does, however, note that the export trade was always an important aspect of the Rainford pipe industry and that the biggest markets were in America and among the Boer farmers in South Africa (Berry 1963: 4).

As early as the end of the C17 there were complaints in Liverpool that pipemakers outside the town were taking advantage of the cheapness of their products (relative to Liverpool-made pipes) to undercut Liverpool makers (Berry 1963: 7), and it may well be that in the early C19 Liverpool makers became progressively less able to produce pipes at a price comparable to those made by no doubt less well-paid workers at Rainford and thus their industry began to contract.

As already noted, cigar-smoking was introduced into Britain in the 1810s. In the 1820s and 1830s it seems to have rapidly increased, as to some extent did the general consumption of tobacco, so that by ca.1860 it was stated that more than half the tobacco smoked in the major centres in this country was in the form of cigars (see 1: VII(e)). It is therefore fair to assume that it was cigar-smoking rather than the meerschaum pipes Oswald (1960a: 46) suggests, which caused the decline of the clay pipe. Certainly cigarettes and the brier pipe did not play any part in the decline of the Liverpool industry, for neither was introducted until the second half of the C19. Snuff was going out in the earlier or middle C19, and the meerschaum pipe and similar cheroot- and cigar-holders (e.g. Oswald 1959c: pls 129a, 129b and 130a) were aristocratic items which cannot have been used by the masses (plain pipeclay holders, however, are known - Southorn's made them, for example). Oswald's suggestion that cheroot-holders, along with meerschaum pipes, took over from clay pipes cannot be true, but the introduction of the cigar may well have been a major factor in the decline of the Liverpool clay pipe industry.

It is possible that the popularization of cigars actually took place initially in Liverpool rather than by way of army officers returning from the Penninsular Wars, for a writer in 1829 said that 25 years previously cigars had been little-known and could be obtained only from West Indian captains of Liverpool and Bristol ships (Penn 1901: 88). This suggests the introduction of the cigar may have been partly from direct New World influences, and Liverpool being so much more a flourishing port at this time than was Bristol it may be that Liverpool played a part in the initial spread of cigars. This might be a more convincing explanation for their apparent use regardless of class, for the new habit brought back by army officers would have been imitated more by socially-conscious classes (cf Penn 1901: 181).

It is dangerous, bearing in mind that figures derived from Oswald's 1960 lists cannot give an accurate picture, to push interpretations of these figures too far, but one hint that they may reflect trends reasonably accurately is the temporary dip in the number of new pipemakers recorded for the period 1791-1810, for this was the time of Britain's wars with France and a time of soaring costs and lowered wage-values (see 5: II), all of which would have tended to depress the industry (it was also a time when tobacco-consumption was at a somewhat depressed level, but this phenomenon covered a much longer period, starting in the 1790s and not beginning to recover until the 1830s (1: VIII)). Certainly, the evidence of the rapid decline in the number of first mentions of pipemakers in the 1830s, unless it is a total distortion must indicate a break in the prosperity of the industry. Indeed, no new names are recorded during the 1840s.

The 1850s, however, see what seems to be a minor revival, and this is particularly interesting when related to events in the Glasgow and Montreal pipe business at the same time. As already mentioned, Irish arrived in Liverpool in vast numbers in the 1840s - 300,000 in 1847 alone - and a similar phenomenon is observable in Glasgow and Montreal. There too, there is a rapid increase in the number of pipemakers in business in the 1850s. The connection between the Irish and clay pipes has become traditional (e.g. Fleming 1923: 237-8; Rynne 1967: 34 and refs - in Ottawa, clay pipes, bedecked in green ribbon, appear in tobacconists' windows at the approach of each St Patrick's Day) and a list of Scottish, and particularly Glasgow, pipe-types in production in 1900 (Anonymous 1900) gives a large number with Irish names - famous ones including terms such as Dublin, Cork, and Limerick, others such as Derry, Belfast, Waterford, Tralee, Mayo, Ulster, and Connaught - and though this is a tradition that can go back no farther than the beginning of the C19, snuff (see 1: VII(b)) being the C17 and C18 Irish tobacco-taking tradition, it seems very likely that the arrival of large numbers of Irish in the 1840s stimulated the clay pipe industry in the centres where these immigrants settled. This Irish predilection for pipe-smoking continued at least into the 1920s, at which time 60% of tobacco consumed in Ireland was pipe-tobacco, compared to a figure of ca.40% for the United Kingdom (Alford 1973: 385). Unfortunately, none of the new pipemakers recorded in Liverpool during the second half of the C19 has Irish-looking names, so we are denied this piece of corroborative evidence.

While the Irish settlement in Liverpool, Glasgow and Montreal (and East London through the effect of this on the East London pipe industry has yet to be examined) following the Great Famine was colossal, large-scale Irish emigration to these and other places dated to well before the later 1840s (George 1925: chapt 3, esp. pp120-31, 1966 ed; Freeman 1957: 37-49; E.P. Thompson 1963: 669-85, 1968 ed). Unfortunately it is not possible to say whether this had any effect on the pipemaking industries in the earlier C19. Because the Glasgow and Edinburgh industries appear to be virtually non-existent until the early C19 it might be that Irish immigrants had some effect on them, but this pre-supposes that the Irish were commonly smoking pipes by 1800, and in fact what evidence there is at present available suggests the popularity of clay pipe smoking in Ireland parallels rather than precedes its popularity in Scotland.

Dublin trade directories do not have classified trades lists before 1835, but in that year only six makers appear, a figure which has not changed 10 years later; and spot checks on figures in succeeding decades - five in 1845, nine in 1862 and again in 1876 and 1885, four in 1895, and two in 1901 (Dublin Public Libraries in litt. 19 February 1968) - indicate the Dublin industry reached its peak in the later C19, the same time as did the Glasgow and Edinburgh industries (see Section IV below). By this time the English industry was well into its final decline, so it would appear the Irish and Scottish industries were paralleling each other, at least for most of the C19. By 1832 pipes were being made in Co. Roscommon and being used especially at wakes (Weld 1932: 511-2), and they had been made for some time at Knockcroghery, the village involved, for some time, the industry apparently having been started by a settler who was a pipemaker. If pipes were being made in this country part of Ireland for some time prior to 1832 it seems likely they were being made in centres of population by ca.1800; however, Wesley's comments on the prevalance of snuff in Ireland in his time suggest smoking cannot have been very common before 1800. One piece of evidence reinforcing the impression that the Irish started pipe-manufacturing to any extent only in the early C19 comes from the Bristol port-books, where work by Jackson and Price (R. Price in litt. 18 January 1974) shows that after fairly steady exports of pipes from Bristol to Ireland during the last quarter of the C18 the quantity begins to decline from the beginning of the C19 and this decline coincides with the rise of pipeclay exports to Ireland, clearly suggesting the beginning of an Irish pipemaking industry which must certainly have increased the use of pipes in Ireland not only by making them more readily available but simply by producing more cheaply than the cost of imported pipes. Earlier Irish immigration to Liverpool certainly does not appear to have checked the seeming slump in numbers of pipemakers there in the last decade of the C18 and first decade of the C19 (see above). There is not a clear enough dip in the number of Dublin makers recorded in the 1840s and 1850s to suggest the Famine of 1846-47 caused much of a contraction in the industry, but it is clear pipe-smoking was reaching a height of popularity in the decades following 1850 and one could expect this to be reflected in any place where large numbers of Irish settled.

Thus to sum up the findings on the Liverpool pipemaking industry, it grew up not so much with the general growth of the port or of its trade, both of which were expanding by the beginning of the C18, but with the slave trade which used pipes to trade with West Africa and had hitherto used Chester-made pipes and an extremely rapid rise in a population which demanded pipes. However, during the second quarter of the C19 the industry declined, because of a complex mixture of reasons - perhaps most likely because when smoking increased following the Napoleonic Wars there was a widespread change by people of all social classes to cigar smoking, but with pipes made outside the city undercutting the city makers and the abolition of the slave trade as probable other factors. In the 1850s there appears to have been a revival of the pipe industry associated with the influx of Irish in the late 1840s and following years.

SECTION III: CHESTER

When the same initial approach is used to examine the Chester pipemaking industry, different problems arise. Oswald's 1960 lists suggest a rapid increase in the decades between 1711 and 1740, the decade 1731-40 being the most prolific of all. The next two decades saw something of a decline, but the period 1761-70 saw a marked increase. The decades 1781-80 and 1811-20 and to a lesser extent 1841-50 saw marked but apparently isolated increases. The full list of figures is as follows:

1641-50	2	1751-60	6
1651-60	2	1761-70	13
1661-70	1	1771-80	3
1671-80	3	1781-90	11
1681-90	4	1791-1800	3
1691-1700	5	1801-10	1
1701-10	3	1811-20	12
1711-20	12	1821-30	3
1721-30	11	1831-40	5
1731-40	20	1841-50	6
1741-50	8	1851-60	1

In this case the alteration of the decades by one year, referred to when considering the Liverpool evidence, makes no significant differences except at the very end where the 1841-50 peak becomes an 1850-59 peak.

A more detailed examination of Oswald's figures for the decades 1731-40 and 1861-70 reveals that of the 20 pipemakers first recorded in the former decade 16 had gained their freedom in 1732, while of the 13 first mentioned in the latter decade 10 became free in 1767. In discussing the Liverpool figures the Bristol practice of large numbers of craftsmen taking their freedom immediately before an election was noted: the Chester figures for 1732 may represent the same occurrence, for there was a by-election there last year, but the significance of the 1767 figure is unknown, for there was neither general nor by-election that year - possibly there was an attempt by the city council to enforce the almost-dead legislation allowing only freemen to ply a trade within the city. (Information on Chester by-election from Chester City Archives; on general elections from Interim Report...House of Commons Personnel and Politics 1264-1832, 1932).

It must be admitted that the Chester statistics do not arrange themselves so conveniently as do those of Liverpool; and it is difficult to decide whether later, isolated, increases in first mentions are anything more than a consequence of the imprecise method and incomplete sources used. For example, Oswald's recent figures (1970b: 227) of 61 makers in the period 1700-50 and another 61 for the period 1750-1800 suggest a different picture to that of 11 years previously (1959c: 202) when the figures were 60 and 36 respectively (the figures as worked out from Oswald 1960a - above - are in fact 54 and 36 respectively). However, it is possible that Oswald's 1970 figure for the period 1750-1800 conceals a larger number towards 1750 and a drop towards 1800, and that the first half of the C18 saw the peak of Chester's pipemaking industry. Thus Oswald's earlier suggestion (1960a: 45) that Liverpool's increase in pipemaking was at the expense of Chester, and was connected with the latter's rise as a port and the former's decline might still be true.

There are undoubtedly grounds for this assertion, and not only in the way the figures may relate to each other. In the C18 there is a famous Chester family of pipemakers, the Meakins (Oswald 1960a: 42-4; cf G.C. Spence 1942: pl VII), the first of whom obtained his freedom in 1721. The relationships of the various Meakins has never been ascertained, but sons of the first Meakin, Randle, can be fairly certainly identified by their apprenticeships and also their dates of freedom. In 1766 a Luke Meakin is noted in Liverpool - just when the Liverpool pipemaking industry is expanding - and chronologically he could be one of the numerous sons of the first Chester Meakin. It is certainly extremely likely that he was of the same family. In 1755 a William Makin is recorded in Liverpool, and in view of the way in which family names frequently changed their spelling it is quite likely that Makin belonged to the Chester Meakin family. If so, he was most likely of the third generation. That the Meakin family continued in Chester, however, is indicated by one taking his freedom as a pipemaker in 1826 (G.C. Spence 1942: loc. cit.).

Similarly, another Chester pipemaking family was that of Powell (Oswald 1960a: 85-8; cf G.C. Spence 1942: loc. cit.). Again the relationships of the various Powells have not been studied, but the name occurs six times in Chester between 1710 and 1850 and at Buckley in North Wales 8 miles west of Chester into the C20 (G. Lewis 1970: 2nd page), and again a Powell is found working in Liverpool, in 1790. Three Chester pipemakers called Hall occur in the second half of the C18 and the first half of the C19, and two with that surname are noted in Liverpool in the second half of the C18 (Oswald 1960a: 73-8).

Similarly again, a Hayes family, a branch of which continued in the potting trade into this century, made pipes at Buckley from the second half of the C17 well into the C18 (Messham 1956: 33-4, G. Lewis 1970: 1st page; Cropper 1906; Anonymous 1965: 7): one Hayes, Thomas, became free in Chester in 1727 and several appear as pipemakers in Liverpool, mostly towards the end of the C18 - Samuel 1721, Jeremiah 1770, Able 1774, Edward 1791 (Oswald 1960a: 73-8), and Thomas a Liverpool pipemaker who died in 1800 and whose will was proved at Chester (editor's note in Cropper 1906: 44).

However, the idea that the decline of Chester as a port coincided with the rise of Liverpool, which is often stated (e.g. VCH Lancs. IV, 16-17; Moffit 1925: 135, 149; Steers 1946: 109, 1964 ed) and is implied in Oswald's remarks, is misleading. At the beginning of the C17 small boats were able to reach Chester, but larger ships had to lie six miles below the city. (The following remarks are based except where otherwise noted on Willan 1936b: passim, 1964 ed; 1937a; 1938: passim esp. 180-6, 1967 ed; Chandler 1957: passim). There appears to have been some improvement in navigation ca.1700 and in 1707 it was said that at spring tides vessels drawing nine ft could reach Chester, but it was not until 1737 that a new channel was cut to improve what through silting by tidal and wind action was in the earlier C17 called the worst river for navigation in the country.

Coastal trade appears to have increased during the C17 - tobacco pipes for Caernarvon and Beaumaris are noted - and in the middle of the C18 pipe-clay from Poole and (rather curiously - presumably a reshipment of clay originally from Poole or North Devon) Milford is recorded arriving. Pipeclay from Exeter - presumably also originally from Poole - and Bideford is also recorded (Craig 1962: 116, 128); according to Shaw (1829: 125, 1970 ed) North Devon clay was known in The Potteries as "Chester clay" because it was shipped through Chester. Following the improvements of 1737 there was a rapid growth in coastal trade in coal, firebricks, and earthenware. In the 1740s the rapidly-expanding earthenware trade in Buckley-made pottery was almost exclusively with Dublin, but in the 1750s this was becoming sporadic and was partly replaced by trading with Welsh ports (Messham 1956: 31). Between Christmas 1748 and Christmas 1749 a total of 118 cargoes are recorded being shipped coastwise from Chester, but relative to other ports such as Liverpool (which had been growing rapidly since the mid-C17) Chester's trade was obviously declining. Chester merchants certainly felt that Liverpool was taking away their trade, as is evidenced by their attempts to assert some authority over that port, which throughout the C17 was technically a member port of Chester, but clearly Chester would have been incapable of handling any great increase in shipping.

The distinctive coarse earthenware made in the Buckley district of Flintshire, North Wales, was exported to the American colonies in vast quantities from the early C18 to the Revolution, but though Buckley is only eight miles west of Chester the pottery shipped to North America went through Liverpool (I. Noël Hume 1963: 283; 1970: 132-3), and it seems likely that ocean shipping rarely used Chester or even the harbours farther down the Dee. Certainly the shipments noted above going through Chester in the mid-C18 were either along the north and west Welsh coasts or to no farther than Ireland; while shipments in the earlier C19, now from King's Ferry to Connah's Quay below Chester, still went no farther than north, west, and south Wales ports and Ireland (Messham 1956: 49-55). It therefore seems reasonable to suppose that the Chester clay pipes shipped overseas, for example the elaborately-decorated stem-fragments found at Louisbourg in Nova Scotia which are probably from Chester pipes (I. Walker 1971c: 70, 69 fig 11, cf 111 and 114-5, 108 fig 40 extreme left) and the "hog pipes" made for exporting to West Africa presumably as part of the slave trade (G.C. Spence 1942: 48-9; quoting a source of 1810), went through Liverpool. The same 1810 source states that ca.1780 Chester pipes were "esteemed the best in Europe" but that by 1810 "The home trade only remains and that in a diminished state".

At the 1818 general election 12 Chester pipemakers voted (G.C. Spence 1942: 65), a figure which might suggest there was still, or again, a sizable business in the city, but this depends very much on how many are factory-owners and how many ordinary artisans. As already noted in the preceding section, seven "pipemakers" were noted ca.1800 in Liverpool employing between them ca.120 men and women, and in Bristol as early as the 1760s John Frederick Bryant sr was employing up to ten journeypeople (Bryant 1787: viii), indicating the 12 Chester pipemakers if ordinary artisans could have worked for only one or two firms. The 1818 Chester poll-book lists street of residence for voters, and the pipemakers evidently tended to live in groups, for four are noted in Union St, one in Foregate St which lies parallel to it, and three in Love St, which runs between them. This tendency for pipemakers to concentrate in certain areas within a community is one which will recur repeatedly in this study, both in Britain and abroad (see following sections).

As Liverpool appears not to have manufactured many of its own pipes at first, Chester pipes no doubt found a ready home market there. As the rise of the Liverpool pipe industry resulted from the city's rapid increase of population, it is reasonable to suppose that this industry initially supplied local demand with cheap pipes. Thus the reference to superior Chester pipes as late as the 1780s is not improbable. It may be suggested however, that mass-production in Liverpool ultimately killed quality-production in Chester.

In fact, little detailed work has been done on the Chester industry, particularly in the identification and illustration of Chester-made material, for though Spence produced an invaluable list of pipemakers from various documentary sources - apprentice and burgess rolls, parish registries, poll-books - and does illustrate several marks, bowl forms and typological development are not illustratd and have never been examined; and little excavated material has been published. A mid-C17 Chester bowl illustrated by Oswald (1959c: fig 4(21)) shows Broseley-style attributes while C18 bowls illustrated by Webster and Barton (1957: 24 fig 1,a-c) indicate a variety, probably local, of Oswald's type 9 form was used by that time. Elaborately-decorated stems, apparently adopting as motifs inn-signs of various Chester hostelries, are noted by Webster and Barton (ibid. 19-21, fig 1,1-10; cf G.C. Spence 1942: pl IV; I. Walker 1971c: 70, 69 fig 11, 111 and 114-5, 108 fig 40 extreme left) and are distinctive of the Chester pipe-industry, decorated stems being rare otherwise in England (see 1: II(g) and refs).

One point worth noting as further suggesting close connections between the Chester and Liverpool pipe industries is the use by at least one Chester maker of the same style of mould-imparted stem-mark as that being used in Liverpool in the second half of the C18 - the maker's name and his place of work together on the same side of the stem. The Grosvenor Museum, Chester, has a pipe marked thus "Maires and Sons, Chester" (Grosvenor Museum in litt. 9 June 1972). The museum ascribes to it an C18 date; the firm is not noted by Oswald (1960a) but a John Mires or Myers F 1722 fl 1732 is recorded (Oswald 1960a: 82; G.C. Spence 1942: pl VI and p.64; cf possible pipe by this maker from Port Royal, Jamaica, Oswald 1968 81 no 194 with I/MIH/VRS in a Bristol-like cartouche on the rt side of a type 9 bowl) who could be an earlier member of the family). It would be interesting to know which pipemaking centre copied which with this form of stem-marking - as noted in 1: II(g) only Liverpool and Chester appear to have put name and place of work together, and Liverpool at least apparently abandoned it by the early C19 in favour of the standard form with place of work on the opposite side of the stem from the name. In view of the inventiveness of Chester makers with apparently mould-imparted stem decoration in the earlier C18 it seems possible they might also have hit on the idea in mid-century of mould-imparting their name and place of work on the stem.

Chester was situated in a predominantly agricultural area, and the industrial revolution came very late to the region, especially to the Wirral (excluding Merseyside which must be regarded as part of the Liverpool complex). One may guess that the opening of the Chester-Ellesmere Port branch of the Shrophsire Union Canal in 1798 and the Chester-Birkenhead railway in the 1830s stimulated the Chester area, but it is quite possible that by this time Liverpool had become such a manufacturing centre that it completely overshadowed Chester as a supplier. However, it should be noted that the Rainford industry could flourish while that in Liverpool declined, and it is tempting to suggest that the sudden first mention of no less than six pipemakers in the ten years 1841-50 - almost the last time any new pipemakers from Chester are recorded - is, like the increase for the 1851-60 period in Liverpool, caused by the Irish influx to the Liverpool area creating a temporary market which aroused Chester makers to start or restart businesses for a short time.

Thus it can be said that a closer study substantiates Oswald's suggestion that the Chester pipe industry declined in the C18 because of the rise of the Liverpool industry, although not because the latter replaced the former as a port during this period. The Chester industry appears to have died because its markets were lost and its quality-produced pipes were undercut by quantity-made pipes from Liverpool.

SECTION IV:
GLASGOW

A more detailed experiment may be made with the records of Glasgow pipemakers. Preliminary work by this writer, mainly on Glasgow trade directories, suggests that prior to the C19 there were very few pipemakers and that the number only slowly increased towards the middle of the century. For example, at the beginning of the C19 there is only one pipemaker, William White, whose firm closed in 1955 and who is said - by an unreliable source (Fleming 1923: 242-3) - to have been given in 1805 the pipemaking branch of the Corporation of Tobacco Spinners of Glasgow (the spinning of tobacco was the production of twist tobacco for pipe-smoking). Advertisements of White's appearing in 1877 and 1893 also give 1805 as the firm's foundation date; the trade directory for 1805 gives White as having a "rope-work", on Great Dovehill, but in 1806 gives him as having a "pipe-work" there. (Curiously, in 1828 the first issue of the Glasgow Post Office Directory, a superior directory to those appearing previously, also lists a ropeworks at White's address, though White himself does not appear; by this time White had moved across the Gallowgate to 15 Gibson St. These entries are probably misprints.) Eyre-Todd (1934: 271-2 citing the city records; this is presumably the source of the information quoted to Omwake in 1957a: 7) says that the Society of Tobacco Spinners successfully petitioned to be recognized as a "legal subsisting society" on 8 September 1779, and possibly at this time it changed its name to the Corporation of Tobacco Spinners.

As already noted, Glasgow's entry into the tobacco trade did not occur in earnest until after the Union in 1707 made direct trading between Scotland and English colonies legal, though tobacco was arriving steadily by the 1680s. Glasgow had several advantages, however. Its merchants were able to give better prices to Virginia planters (MacInnes 1926: 180-1), hitherto at the mercy of English traders. Other advantages compared to, say, Bristol were similar to those of Liverpool, Glasgow's arch-rival throughout the C18: the safety of the northern route from foreign navies in time of war and from privateers in time of peace; and suitable material for export - chiefly cloths not only from all over Scotland, but from NE England and the growing industries of Manchester, Sheffield, and Birmingham, which found Glasgow and Liverpool easier to trade with than the ports of the south. Further, Glasgow had agents in the tobacco colonies by the 1720s and also had agents in the staple warehouses in the main European re-export markets, both of which practices contributed to lower costs. Glasgow is also nearer Virginia than are the southern ports, and as a result each round voyage could be two to three weeks faster, with resultant advantages of savings in food and wages for the crew and the squeezing in of an extra voyage in the season - Defoe observed (noted in J.M. Price 1954: 305, 1967 ed) that a vessel could go from the Clyde to the Virginia coast in the time a London ship might be kept at Portsmouth by contrary winds in the Channel, and one set of figures (Stevenson 1973: 19-20) was 37 days from the Clyde to the Chesapeake compared to 51 from Bristol. There was also, as Price notes (1954: 303, 1967 ed), a general decline by the end of the 1740s of the small ports of SW England which had been involved earlier in the tobacco-trade - Padstow, Truro, Fowey, Looe, Plymouth, Dartmouth, Exeter, Lyme [Regis], Poole, etc, and even in the larger ports such as Barnstaple, Bideford, Falmouth, Penryn, and Weymouth - and a shift in the centre of gravity to more major ports in the North-West.

The biggest reason for the rise of Glasgow's tobacco trade, however, was that from ca.1740 its merchants had been winning contracts to supply the Régie of the fermiers généraux, which taking over the state monopoly from the Compagnie des Indes in 1730, held the monopoly to supply tobacco in France until 1791 (Herment 1952: 108-10, 1965 ed). It is from this time that the Glasgow tobacco trade rapidly expands. In the first half of the C18 Amsterdam was the major trading centre in Europe for tobacco, and as late as 1755 The Netherlands bought more tobacco than all other European nations together; but the vast French monopoly market suited the growing Glasgow trade with its large partnerships better than the open market policy of the Dutch where small and large merchants could compete on virtually equal terms on a hogshead by hogshead basis, a basis which increased the marketing costs and eliminated the savings the Glasgow merchants were hoping to achieve by bulk selling. Between 1757 and 1771 there was a dramatic change in the direction of the Glasgow re-export trade, France quite overshadowing The Netherlands (Stevenson 1973: cf 21 fig 1 and 22 fig 2). Other countries to which Glasgow re-exported tobacco were Ireland, Norway, Sweden, Germany, Poland, Portugal, Spain, Minorca (a British possession for much of the C18), and Italy.

The spectacular growth in the last part of the C17 and the earlier part of the C18 of Whitehaven on the Cumberland coast was similarly due in large measure to profits made in re-shipping tobacco. Whitehaven had a hinterland of little economic value, though it exported coal from the adjacent coalfields to Ireland, but it was more convenient for ships bringing tobacco destined for re-shipment to Ireland under the Navigation Laws to use Whitehaven than to continue on to Liverpool. By the 1720s, however, Glasgow's tobacco-trade with Ireland had expanded enough to affect that of Whitehaven, and from the early 1760s until the early 1780s Glasgow was Ireland's chief supplier, though Whitehaven's trade did not cease until the end of the 1770s. By this time (1779-80) Ireland was being allowed to trade directly once more, and began to import substantial amounts of tobacco from the former North American colonies (Andrews 1955: 108-9; L.M. Cullen 1968: 76, 90, 161, 48; Davies-Shiel 1969: 23).)

English merchants, including those of Bristol, did not surrender without a struggle, and in the 1720s there was a protracted attempt to claim that Glasgow merchants were guilty of fiscal irregularities. These claims were proved wrong, but the English merchants were able to exert enough influence to hamper Glasgow trade until the mid-1730s (e.g. Latimer 1893: 135 citing a letter from a Bristol merchant admitting the falsehood of the allegations; MacInnes 1926: 180-1; Flinn (ed) 1966: 122-3, quoting a source of 1733) - from 1,450,000 lb annually in the years following the Union the amount of tobacco imported by Glasgow had jumped to 2,500,000 lb by the mid-1710s to 6 million lb by 1722, but it was not until 1741 that the figure reached 8 million lb (J.M. Price 1954: 300, 1967 ed).

From 1741, however, the figures rose very rapidly as the following table shows, reaching a peak of 47,250,000 lb in 1771:

1743	10,000,000	1753	24,000,000
1745	13,000,000	1760	32,000,000
1752	21,000,000	1771	47,250,000

(figures from J.M. Price *loc. cit.*, exact 1771 figure - 47,268,873 lb - in Stevenson 1973: 20). In 1744 Glasgow accounted for 20% of all tobacco imported into Great Britain; in 1769 this share was 52%, the highest it reached. In 1751, when a tax was put on all tobacco lying in bond, Glasgow merchants had some 30 million lb weight. In 1755 manufactured re-exports brought in customs 30% higher than those of the entire tobacco import into Glasgow (Derry 1963: first pt, 146-7). Ashton (1955: 161, 1961 ed) gives an occasion when tobacco was rated on entry to this country at 19s a cwt and on re-export at 38s a cwt (it must be pointed out, however, that costs of collecting, transporting, warehousing, and selling to foreigners were not small, and that risks were high; Devine (1971: *passim*, esp. 291-4), though dealing primarily with Glasgow's West India Trade during the period of war with the American colonies, 1775-83, gives an idea of the sort of risks run by merchants at this time).

As indicated above, the Glasgow tobacco trade reached its zenith ca.1770, and during the glut years of the early 1770s the amount of tobacco imported through Glasgow both in absolute terms and as a percentage of tobacco imported into Britain as a whole declined somewhat, the former figure being down to 45 million lb by 1775 and the latter to ca.45 per cent. However, it was the American Revolution which ended the era of Glasgow's Tobacco Lords. Some of the merchants had seen the probable course of events and had pulled out in time; two, Speirs and Cunningham, contrived to make even larger fortunes for themselves by storing large amounts and selling this at inflated prices when the trade had been totally destroyed. How completely destroyed the trade was can be seen from the trade figures for the years 1775 to 1777. From 45,000,000 lb imported in 1775 the figure fell to 7,500,000 lb in 1776, and to 300,000 lbs in 1777. Many of the Tobacco Lords were ruined, for example the Buchanans (though a son of the last Buchanan Tobacco Lord went to Virginia and eventually made another fortune). The effect on Scottish trade as a whole was less severe only in degree - in 1778 Scotland's total trade was only 58% of the 1771 level (Mackie 1964: 292, 1969 ed), which gives some idea of the disproportionate importance of the tobacco trade and associated exports to the Scottish economy. In 1772 tobacco had amounted to 80% of all Scottish imports from North America and ten years earlier, in 1762, the figure had been as high as 85 per cent. Indeed, in 1762 tobacco had comprised 40% of *all* Scottish imports (excluding those from England) and 47% if Ireland were not included as overseas. In return, Virginia and Maryland received 83% of all Scottish exports to North America and the West Indies in 1769. In the years 1772-74, immediately prior to the American Revolution, Virginia and Maryland were the destinations of 49% of all Scottish tonnage, and if North Carolina were added the figure rose to 56 per cent. Tobacco accounted for 81% of Scottish re-exports of foreign produce and for 52% of all Scottish exports in 1762 (figures in J.M. Price 1954: 299-300, 1967 ed). (According to Mackenzie

(1957: 283-4) and Nichol (1966: 99) one firm of this period, Stephen Mitchell and Son, founded 1723 and a founder-member of the Imperial Tobacco Company in 1901, has continued in business; this however, appears to be based on a misunderstanding, for Mitchell's were founded at Linlithgow, west of Edinburgh, in 1723 and only moved to Glasgow in 1825 when Blackness, the port for Linlithgow, was no longer permitted to import tobacco (Anonymous n.d.[3]: 47). In fact, the year Mackenzie wrote, Mitchell's were amalgamated with W.D. and H.O. Wills (Anonymous n.d.[3]: 46, 53; Alford 1973: 443).

The tobacco trade stimulated economic growth in Scotland by establishing a market overseas for Scottish goods and by building Glasgow's commercial trade, and tobacco-made money made a major contribution to the industrial revolution in the Clyde valley (Ashton 1948: 58); but it brought direct wealth only to a few, and most of the tobacco was always for re-export - out of 4,000,000 lb imported in 1724, 3,000,000 were re-exported (Mackie 1964: 292, 1969 ed) and in 1771 almost 300,000 lb more were re-exported than was imported, the latter figure, as noted above, being slightly over 47,250,000 lb (Stevenson 1973: 20; cf Andrews 1955: 110, where it is noted that three-quarters of English tobacco imports in 1722 were re-exported as far as Russia, Maderia, Italy, and the East Indies). Glasgow's real industrial progress with its attendant increase of population began in the 1780s with the textile - principally cotton - industry and as that declined in the period 1830-60 it was replaced by the heavy coal and iron industries which came to characterize Glasgow.

In the earlier part of the C18 Glasgow drew admiring comments from more than one traveller. Burt, for example, writing in the 1720s, opined that Glasgow was "to outward Appearence, the prettiest and most uniform Town that I ever saw; and I believe there is nothing like it in Britain", though he also observed that "the extreme Parts of the Town are mean and disagreeable to the eye" (Burt 1754: I, 25, 1876 ed). Although its population more than doubled between 1708 and 1763 - the estimates for these years are 12,000 and 28,300 respectively - it was not until the 1770s that the population began to rise rapidly. It was in the last 30 years of the century that road and canal development, and the improving of the Clyde navigation, boosted Glasgow imports and exports. It was not until 1749 that the first wheeled vehicle travelled the 44 miles from Edinburgh to Glasgow, and it took two days to do so. By 1760 the journey still took a day and a half; in 1799 it took nine hours.

Undoubtedly, improved communications played a major part in the rise of Glasgow industries, as they did in other centres. By 1780 the population of Glasgow had jumped to 42,000 and by 1791, 66,000; by 1800 slum areas had already appeared and in the first official census - 1801 - the population was given as 77,000. However, it was not until the 1820s and 1830s that the grim and sooty appearance familiar to industrial cities began, as heavy industry became part of the Glasgow economy.

In 1811 the population was 101,000; by 1831 it had doubled, by 1861 it had almost doubled again, and by 1891 it stood at 566,000. The detailed figures are as follows:

*1708	12,000	1831	202,000
*1763	28,300	1841	256,000

*1780	42,000	1851	329,000
*1791	66,000	1861	396,000
1801	77,000	1871	476,000
1811	101,000	1881	511,000
1821	141,000	1891	566,000

(*estimate)

(Except where otherwise noted, references in the preceding paragraphs have been based on the SA vol 5 (1793) 497-506; Hamilton 1932; Eyre-Todd 1934; J.M. Price 1954, 1967 ed; Third SA vol 5 (1958); H. Hamilton 1963; Marwick 1964; R.H. Campbell 1965; Nichol 1966; Youngson 1966: chapt II; Stevenson 1973).

As previously stated, the Glasgow pipemaking industry appears to have grown only slowly in the early C19, when Glasgow's population had already been rapidly expanding for two generations, and prior to 1800 pipemaking appears to have been a very minor trade. There is a passing reference (R.L. Wilson 1961: 132) to the Glasgow industry going back to the C17 - the source for this statement is probably a reference by Fleming (1923: 119) to a James Colquhoun, apparently the earliest-known potter in the Calton area of what is now Glasgow, who petitioned in 1668 to be allowed to make pottery and whose works were said to make red clay tobacco pipes from a local clay found at Lumlock, to the NE of the Calton. Fleming also records (1923: 132) that in the Corbals area, on the south side of the Clyde, a John Holden set up as a potter using the local Shawfield clays in the early part of the C18 and included red tobacco pipes among his products. The factory, according to Fleming, closed in 1781, having been a "prosperous and well-known place". In 1783 an Arthur Halliday is recorded as a "pipemaker", possibly a tobacco-pipe maker, in a trade directory: this is the earliest Glasgow directory, and none of the four others which appeared between then and 1799 list any tobacco-pipe makers.

It should be noted that Glasgow had two local beds of boulder clay, one in the Calton area along the line of the Gallowgate - on the north side of the river - and the Shawfields and Polmadie deposits on the south side. Both these areas were used by local pottery industries, particularly the Calton area, which was adjacent to the Camlachie coal deposits. From the middle of the C18 this area became industrialized - a map of 1778 shows the Calton to be full of potteries. For ware which required better clays than the local red clay, Carrickfergus clays, apparently ballclays (see 2: IX) - were imported from Ireland. These were the clays used for Liverpool and probably Bristol tin-glazed earthenware. However, Devon ballclays appear to have been substituted later.

The Calton and the immediately surrounding area is where most of the Glasgow pipemakers of the C19 are found. By this time ballclay was being used for these pipes and not the local clay, but it seems probable that in Glasgow at least the pipemaking and pottery industries originated with local deposits of clay and coal. Once established in the area these industries would tend to stay even when clay had to be brought from elsewhere. Further, the Calton did not become part of Glasgow until 1846, and indeed did not pass beyond an essentially village organization until 1817 when its first provost was elected (Fyfe 1918), so that its relationship to the city of Glasgow was like that of East London to the City (discussed later) - an area of cheap labour uncontrolled by city authorities and able to supply articles to the city at prices lower than those of the city manufacturers. In addition, pipemakers appear to have been a gregarious group - they clustered together not only in Glasgow but in Montreal, Detroit (see both below under Montreal), East London (see below), Boston (paper given by P. Wells to the Spring Conference of the Society for Post-Medieval Archaeology, Lincoln, March 1969; now in Wells 1970: 21), and Saint-Omer where the quartier des pipiers has its rue des Pipiers and rue des Blanches-Manches, the latter, as Jakowsky notes (1956: 25), descriptive of the pipemaking trade. Other Glasgow pipemaking firms worked nearby to the west in the small C18 centre of the city, by this time becoming a slum and therefore with cheap property often near the river. Only a few worked elsewhere.

In the C18, Glasgow's connections with Virginia through the tobacco trade resulted in a flourishing pottery export business with Maryland and especially Virginia. Figures for 1771 show over 37,000 pieces of earthenware sent to Virginia alone, and over 25,000 pieces of stoneware. Boston, Philadelphia, and Antigua (West Indies) also received Glasgow pottery. Undoubtedly behind this trade had been Robert Dinwoodie or Dinwiddie, Lt-Governor of Virginia from 1751 to 1758 (Lt-Governor was in effect governor, for the titular governorship was purely a sinecure given to a British peer). Dinwoodie was a founder of the Delftsfield pottery in Glasgow in 1748; his brother was Lord Provost of Glasgow in 1742 and 1743, and the two had a large family business. (Robert died at Clifton, Bristol, in 1770 (Little 1954: 234, 1967 ed).) Along with the pottery exports of 1771 is listed 309 gross of tobacco pipes. Again, 122 gross pipes are noted being shipped to America in 1795; not vast amounts, but enough to indicate that Glasgow did export tobacco pipes on some scale (cf Collard 1967: 228-9). (The preceding four paragraphs are based on Fleming 1923. As already noted Fleming can be extremely inaccurate, but until a fresh study of Scottish pottery appears Fleming is the only source, and is thus quoted here, though with reservations).

It is not suggested that using trade directories is a wholly accurate means of ascertaining the numbers of traders and manufacturers - a pipemaking firm of W. Yuile of Glasgow appears to have existed sometime in the C19, from the evidence of a pipe found near Montreal (Lemieux 1965) but no maker of this name appears in the Glasgow directories. Further, prior to the appearance of the Glasgow Post Office Directory in 1828 the number of pipemakers recorded in the Glasgow Directory varied considerably from one year to the next, varying beween one and five in the ten years previous to 1828, while in the new directory missing entries for makers actually still in business become extremely rare. However, it is fair to say that most local directories give a representative cross-section of important industries. Pipemaking could easily expand without any increase in the number of firms in business, but an increase in the number of firms is an indication of an expanding industry (not necessarily a stable one). A decrease in the number of firms is not necessarily a sign of a declining market, for takeovers could diminish the number of firms without lowering production - indeed, if it resulted in increased efficiency it could increase production - but takeovers could also indicate the beginning of the decline in markets, with the weakest selling out first.

The number of Glasgow pipemakers remained steady between 1828 and the later 1840s at between five and seven; it then begins to rise, reaching double figures in the early 1850s. It continues to rise rapidly, reaching a maximum of 15 recorded manufacturers in 1863, and then declines as rapidly back to 10 by the end of the 1860s. From ca.1873 to 1884, however, there is another increase in makers recorded, 17 being recorded on several occasions, before the numbers enter a very slow decline, reaching 10 again in the early 1900s. A very rapid descent from 10 to 6 occurs in the period 1908-1913, the figures then remaining steady until 1920. From 1920 onwards the number of pipemakers very gradually declines and in 1939 reached three, a figure which remained until 1950. There is thus a rather curious picture of a sudden initial rise and fall in the industry in the 1850s and 1860s and another, longer, period in the 1870s and 1880s when the industry in Glasgow was at its height. Unlike the industry in, for example, Edinburgh, Dublin, or Montreal, there was no sudden decline following this period; rather, a protracted decline from 11 makers in 1889 to one for the last 12 years (1955-1967) of the industry.

When seeking reasons in the economic and social background of the city the most obvious point is that despite the tremendous growth of Glasgow from the end of the C18 through the first half of the C19, the pipemaking trade becomes prominent only in the 1850s. The period 1841-51, however, does see an exceptionally high increase in population - 73,000 - and this is undoubtedly occasioned by the great Irish influx in the 1840s following the potato famine. Only a few Irish names occur among those of Glasgow pipemakers, but in view of the known predilection of the Irish latterly for clay pipes it seems certain that the temporary jump in the number of pipemakers recorded in the 1850s and 1860s is due to the Irish immigrants stimulating demand. It seems reasonable to assume a timelag between increase of population and increase of pipemakers, for those already in the trade would expand to meet the rising demand and then be followed by those - possibly craftsmen with these firms - who decided they could profit from the increased demand by setting up their own firms. For example, Duncan McDougall, founder of the famous firm with his name, left Murray's, another big Glasgow firm, where he was manager, to set up his own business in 1846. The fact that a quite high proportion of firms - or individuals, the directories do not differentiate - lasted only a few years, however, tends to confirm that pipemaking could be a very speculative business, and this is noticeable throughout the C19. Indeed, the period with the greatest number of firms failing after a year or two is 1870-85, precisely the period of greatest apparent prosperity.

That unusually large population increases may have helped the Glasgow pipemakers' trade is suggested by the apparent prosperity in the 1870s and early 1880s, for the period 1861-71 saw an even greater increase in population - 80,000. Again, a timelag between increase of population and increase of makers seems reasonable.

Before the 1880s brier pipes and to a lesser degree cigarettes were common in England, and allowing for a probable delay in these items reaching Scotland it might be possible to postulate their arrival there by the 1880s in sufficient quantities to make themselves felt on the Glasgow clay pipe trade. There is some supporting evidence of this, for the first hint of diversification in the trade comes with the White trade directory entry of 1872 where they advertised as tobacconists and fancy-goods merchants in addition to being pipemakers. The following year the A. Coghill firm were noted as importing meershaum and French pipes and as cigar merchants (presumably in addition to making their own clays). German pipes are added to the list in 1880. The first mention of briers is in 1879 when White's are noted as importers. Other firms appear subsequently specializing wholly as suppliers of meerschaum, French, "fancy", and "patent" pipes, suggesting the decline in the traditional clay pipe business was being accelerated by an interest in luxuries as well as the advent of the brier pipe and other means of smoking such as the cigarette. Archibald A. Percy of the Trongate, for example, first advertises somewhat obscurely as an "agent" among the pipemakers in 1867, but in 1879 is advertising "French clay pipes". Thereafter he appears regularly until 1901, advertising variously "clay pipes, by a new patent system of smoking tobacco", "patented specialities only", and "patent Ivanhoe tobacco pipes". At one time he also lists a London address, suggesting a major business, and during the period 1892-98 he is on Sauchiehall St, the major city business centre. By the time he disappears a number of brier, meerschaum, and "patent" pipe-suppliers have appeared, indicating the changing trend.

Some of the traditional clay pipe firms advertised they supplied clay, or in the case of John Waldie and Co. in 1909 and 1910, were also "bath brick and firelighter merchants". Curiously, White's do not advertise themselves as oversea suppliers until 1884 ("for foreign, colonial, and home trades") nor McDougall's until 1891 ("for export and home trades"), again perhaps because markets were contracting and increased advertising was felt necessary.

Evidence from the Edinburgh clay pipe industry (R. Hill 1964), which reaches its height between the later 1860s and the late 1890s, especially ca.1874-90, again indicates a height of popularity for the clay pipe a generation or more later in Scotland than in England - Oswald (1970b: 228) notes that the majority of English manufacturers finished in the last quarter of the C19. Unlike the Glasgow industry, the Edinburgh industry in the C19 has a slow and steady increase in the number of makers from 1817 and a fairly rapid decline from ca.1895 to 1919 by which time there was only one firm, Christie's (a branch of the Glasgow Christie's), which continued making pipeclay blocks for whitening doorsteps until 1962, though it appears to have ceased making pipes ca.1942.[3] (In 1904 Christie's of Edinburgh were described by a contemporary as being the largest firm of their kind in Britain, making 100,000 pipes a week (Anonymous 1964b), a figure which suggests - using a daily average production rate of three gross of 144 each - that the firm employed ca.38 moulders. Allowing one trimmer for every two moulders, which was probably standard (cf Walker and Walker 1969: 135; also p.140 above), the firm must have had ca.57 workers, plus those involved in preparing the clay, in potting (placing the unfired pipes in saggars), firing, packing, and local distribution (see p.152 above), and the supervisory and clerical staff - probably ca.70 employees all told. This suggests the figure of 20 workers for the firm apparently at about this time given elsehwere (quoted in I. Knight 1961: 34) is much too low - possibly it relates to a later period, perhaps after WW I. (Knight is quoting Miss Christie, who with her brother carried on the Christie business until it closed, but the implication that Miss Christie's grandfather ran the business at the time the 20 workers were employed must be inaccurate, for it was Miss Christie's father, William Christie jr, who ran the firm from its founding in 1894, William sr having established the Edinburgh firm as a branch of his Glasgow concern; further, Knight is also inaccurate in saying that Miss Christie's firm made pipes for 100 years - it was the *family* which was in business for a century, William Christie sr having founded the Glasgow firm in 1857 and the Edinburgh branch outlasting the parent firm, which closed in 1950, by 12 years (Anonymous 1964b).) In any event, however, one of the last two McDougall's of Glasgow workers in 1967 recalled that firm having 150 workers as late as 1914, when she joined (Walker and Walker 1969: 145; also p.566 below), and White's of Glasgow, McDougall's great rivals, must have had about the same size of staff, so the claim that Christie's were the largest firm of their kind at the beginning of the C20 must certainly be exaggerated.)[4]

According to that unreliable source Fleming (1923: 236-7), Glasgow during the latter half of the C19 was an important centre for trading pipes abroad, while Edinburgh supplied the home market. Here Fleming may be correct, for Glasgow pipes have been found in North America from the Atlantic to the Pacific and from northern Ontario to Arizona (e.g. I. Walker 1966a and refs; I. Walker 1970a: 101, 104-5 and expanded version 1971d: 23 and 25) and probably from Alaska (VanStone 1972: 68-9, 65 pl 13,5), in the Caribbean (Omwake *in litt.* December 1966; Oswald 1968: *passim*; 1969: *passim*), in Guyana (former British Guiana) in South America (undated clipping of letter in a January 1975 issue of Edinburgh *Evening News*), in Ghana (Calvocoressi MS), on Easter Island (Oswald *in litt.* 2 January 1969), and in Australia (Pretty *in litt.* 28 February 1968; Allen *in litt.* 11 and 18 March 1968; Birmingham (ed) 1971: 5th page); while Edinburgh-made material seems to have found its way abroad only rarely, occurring in the form of a few products of the firm of Thomas White (fl 1823-76) found on a number of North American sites - Signal Hill, St John's, Newfoundland (material in collections of the Research Division, National Historic Parks and Sites Branch, Ottawa); Portland Point, Saint John, New Brunswick (Barka 1965: 443); Fort Coteau-du-Lac, Quebec province, ca.45 miles SW of Montreal up to the St Lawrence (material in collections of the Research Division, National Historic Parks and Sites Branch, Ottawa); Fort Wellington at Prescott, Ontario, on the St Lawrence (material in same collections); Old Fort Henry at Kingston, Ontario, at the junction of Lake Ontario and the St Lawrence and guarding one end of the Rideau Canal (noted by B.M. Mitchell *in litt.* 2 August 1969): at two upper Ottawa valley sites, the Montgomery Lake site Number 4 on the Petawawa river east of Petawawa, Ontario (B.M. Mitchell *loc. cit.*) and Fort Témiscamingue near Ville Marie on the Quebec side of the river ca.45 miles north of Témiscaming (material excavated by the Research Division of the National Historic Parks and Sites Branch 1971); and at the Ermatinger House at Sault Ste. Marie in northern Ontario (Reid *in litt.* 14 October 1974) all in Canada (cf I. Walker 1970a: 102 and illus. and 1971d: 25, 26-7, pl 3); with single examples known from two sites in the United States, Indian Island at Old Town in Maine (Fox 1972: 33), and on the opposite side of the continent English Camp on San Juan Island, Washington state, an island which was British until ceded to the United States in 1872 (L. Hudson 1975: 84). A bowl marked TW is in the Thóðminjassfn-Íslands, Reykjavík (seen there by this writer 18 November 1971), but as noted in 2: VII a number of Scottish firms, including ones in Glasgow, were producing different "T.W." pipes by 1900 (e.g. a whole Davidson of Glasgow TW-marked pipe bearing the type number 152 from a collection in the Hamilton area, southern Ontario (T. Kenyon _in litt._ 15 June 1972) - a 1900 price-list of Scottish pipes lists Davidson's number 152 as a "Long T.W." and costing 8-1/4d a gross (Anonymous 1900: 38), an about-average price for the time for the normal run of clay pipe), and it appears that the Edinburgh White's products had been sufficiently popular to warrant plagiarization. One cannot, therefore, attribute this bowl definitely to White though it is very likely to be Scottish in origin.

When this Glasgow export trade commenced is not yet clear, but it was certainly before 1850, for "Scottish clays" were being shipped to Montreal in 1842 (Collard 1967: 10 and 407 n.23) and a large number of McDougall pipes as well as lesser numbers of other Glasgow-made pipes were found at Old Sacramento City, California, a site historically dated to 1846-52 (Humphrey 1969: _passim_). This indicates that McDougall's, founded in 1846, immediately made an impact on the export market. Further, Murray pipes have been found in North America, Australia, and on Easter Island, and as this firm became that of Thomas Davidson jr and Co. between 1861 and 1863, presumably Murray-marked pipes ceased to be sold very soon after these dates. Murray pipes were supplied to the Hudson's Bay Company in 1858, though this was an isolated instance (Krause 1969-70). The reference to Scottish pipes being exported to Montreal in 1842 noted above may in fact indicate the beginning of Glasgow's pipe trade with North America, for that reference is to a shipment to Robert Anderson, a Glasgow pottery-salesman who had emigrated to Montreal in 1840 and was to make such a success of selling imported pottery and pipes, particularly Glasgow-made wares, that he was able to retire in 1854 and die 42 years later a millionaire (Collard 1967: 87-8 and footnotes).

A White-made stem was found on an unidentified Indian site abandoned in 1827 (R.L. Wilson 1961: 129 n.31); unfortunately this need not indicate that the stem belongs to the period of the site, though White's made pipes from 1805 to 1955. At Signal Hill, Newfoundland, almost all the marked stems belonged to McDougall - there were only rare examples of Morgan of Liverpool and Murray and White, both of Glasgow, and a single example of Prince of Gouda; there was no Montreal-marked material at all (Jelks 1973: 69, 72-75). At Coteau du Lac, Quebec, on the other hand, 63 White pipe-fragments were found, as opposed to only 31 McDougall fragments. Further, 63 A. Coghill pipes were also found (_ex info_. Miss E.A. Wylie). At the Ermatinger House at Sault Ste. Marie, Ontario, however, the largest number of marked stem-fragments were those of Murray of Glasgow, of which there were 37 as opposed to only 3 White of Glasgow-marked fragments and none at all marked McDougall (the only other non-Montreal marked material was one Scotland-marked fragment - almost certainly Glasgow-made - 2 examples of White of Edinburgh-marked fragments, and single examples of Peter Dorni and Gambier stems) (Reid _in litt._ 14 October 1974). In the London Post Office

Directories towards the end of last century McDougall's advertise themselves as the "largest export manufacturers in the world" while White's call themselves the "largest manufacturers...." which suggests McDougall's, at least latterly, specialized in the export market. Both McDougall's and White's had London offices, the former from 1878, the latter from 1884, though Davidson's had one before either, opening theirs in 1869.

In 1891 the United States made it mandatory for imported items to have their country of origin marked on them (Fontana et al. 1962: 93) - hence McDougall's pipes destined for export in 1967, such as their TDs, had SCOTLAND moulded on their stems (Walker and Walker 1969: 135) - and presumably at this time Glasgow manufacturers replaced "Glasgow" on their moulds with "Scotland". Nearly all the Glasgow pipes in North America seen or read of by this writer have "Glasgow" on them, from which one might conclude Glasgow's pipe trade to North America had declined by 1891. At Old Sacramento City (1846-52), some McDougall-marked stems were also found marked GLASGOW SCOTLAND or just SCOTLAND and others had no place marked on them though McDougall's name was on the other side. This might suggest that several versions of marking, including the use of SCOTLAND, were in use prior to 1891; there must, however, have been at least a minor amount of intrusive material at this site, for a single Davidson stem was also found and as already indicated this cannot be earlier than the period 1861-63.

Some McDougall pipes from two Ontario sites, Longlac Trading Post (Dawson 1969: 45) and the Montgomery Lake site Number 4 in the upper Ottawa valley (B.M. Mitchell in litt. 2 August 1969) were marked GLASGOW SCOTLAND, but neither set of finds can be closely dated. At Longlac Trading Post four McDougall stems were simply marked GLASGOW as were eight W. White stems, but one White pipe was marked SCOTLAND (Dawson 1969: 25 fig 6, 43, 45). A fragment marked WHITE & S[ON] or S[ONS] from the York I site, near York in the Niagara peninsula, southern Ontario, had [GLASG]OW SCOT[LAND] on the reverse (T. Kenyon in litt. 15 June and 18 July 1972). At least one McDougall pipe marked SCOTLAND was found at Portland Point, New Brunswick (Barka 1965: 443), but its context is not known; another was found at Fort Ingall, Quebec province (Samson and Michaud 1969: 63 photo 8 and caption), though not necessarily belonging to the period of occupation of the fort, which was 1839-62; others occur at Pemaquid, Maine (seen there by writer November 1972); another came from Fort Nonsense, New Jersey, a Revolutionary War site (Skinner in litt. 13 June 1972; cf Rutsch and Skinner 1972: 43), but obviously from a post-occupation context. Several McDougall and White pipes have been recovered from Port Royal, Jamaica, in unknown contexts (Oswald 1968: App. B passim; 1969: 61, 63, App. B passim), but only one - a White product - had SCOTLAND instead of GLASGOW. However, one McDougall pipe marked SCOTLAND was found at the Booth Brothers knife factory at Stockholm, New Jersey, which was occupied 1889-1903 (Lenik 1969: 34).

At Fort Ticonderoga, New York state, a stem fragment marked McL- and -TLAND was found (Gifford 1940: 123 pl IV fig 35) - again the context is unknown but it obviously does not belong to the period of the fort's use, which was in the mid-C18. If the maker was a Glaswegian he is perhaps most likely to have been T. McLa(u)chlan, recorded from 1887 to 1938 (other Glasgow alternatives are McLuckie and Prentice, 1873 and 1874, and McLuckie and Fenton, 1875 to 1877; there appear to be no Edinburgh makers whose names would fit).

Being a major oversea port, Glasgow was well-placed for exporting her pipes, while Edinburgh was not; and the large Glasgow export trade in clay pipes which continued in attenuated form until McDougall's closed in 1967 (Walker and Walker 1969: 145-6) explains why the Glasgow industry declined so much more slowly after its heyday was over than did the Edinburgh industry, which had to rely solely on home demand for its prosperity. As noted in 1: VII(h), smoking in all forms but especially pipe-smoking, was increasing rapidly in the United States during the second half of last century, as was the population of that country. This must have meant a major market for Glasgow pipes, and one where they were apparently able to beat off the challenge of native North American white clay pipe industries such as those of Montreal and Detroit.

Low prices of Glasgow pipes in the middle of the last century may have been a contributory factor to the Glasgow industry's export success, for its 21-ins best-quality pipes were being sold for 3-1/2d a dozen at a time when some cutties in London were costing 3d a dozen; but this cannot be the whole reason, for Edinburgh pipes were just as cheap and certainly by the 1860s while the superior Broseley products of comparable length were more expensive at ca.4-1/d-6d a dozen, Bristol long-stemmed pipes were being sold at prices strictly comparable to those for Glasgow pipes (for figures see 5: I). One must also assume, therefore, a reputation for good-quality products. In addition to their North American market Glasgow pipemakers were exporting to West Africa at least by the 1880s (Hume in litt. 7 November 1967) and McDougall's of Glasgow were sending pipes there not only up to WW II (Walker and Walker 1969: 146) but after it and until they closed, for among the losses noted in the winding-up of the firm following its closure in 1967 was that of goods caught up in the Nigerian civil war (Rodger in litt. 24 July 1969).) Both McDougall and Davidson pipes have been found on a site in Ghana (Calvocoressi MS). Glasgow pipemakers also exported, as already noted, to Australia.

Rather curiously, neither World War appears to have contributed to the lessening in number of firms working in Glasgow. The only rapid contraction of the pipe industry there occurred in 1908-13. More curiously, the recession in the 1930s made little discernable impact-1931 saw the number fall from five to four and 1939 saw the number reduced to three.

Why both Edinburgh and Glasgow clay pipe industries apparently started so late remains uncertain. Tobacco was certainly known in Scotland quite early, for a book entitled Nepenthes, or the Vertues of Tobacco, dealing primarily with its medicinal value, including smoking, was published in Edinburgh in 1614 (Fairholt 1859: 86-7), 71; Penn 1901: 223; Apperson 1914: 52-3) and on 7 November 1616 a Capt William Murray obtained a patent giving him the sole right to import tobacco into Scotland for 21 years (Chambers 1858: I, 527). At some time, presumably prior to granting Murray his patent, James VI had forbidden the importation of tobacco into Scotland, but this ban had been evaded and "the country was ever universally filled with tobacco, and public and common merchandise made of the same". James had then imposed a duty of 20s Scots (1s8d sterling) per lb on tobacco, but this had merely resulted in smuggling. On 30 July 1622, therefore, the Scottish

Privy Council had once more prohibited the importation of tobacco, under penalty of confiscation by his majesty. Murray's monopoly was apparently overlooked when this ruling was made, for the following November it was explained that James had not meant to "deprive his loving subjects of the orderly sale and moderate use of tobacco" but only to prevent abuse and excessive use, and that the late Capt Murray's monopoly still stood, the prohibition holding only against those who did not possess a licence under this monopoly. In March 1623 it was arranged that tobacco importers should pay Murray's representatives a duty of 20s Scots per lb of tobacco. The following year, however, Murray's widow and daughter turned over the patent to royal commissioners in return for £20,000 Scots (£1,666 13s 4d sterling) paid in three half-year instalments (Chambers 1858: I, 527-8). Tobacco was apparently being grown at Dunrobin Castle, Sutherland, in the extreme NE of the country, before 1630 (quoted in Mackenzie 1957: 119-120; this association is probably based on a label in a case in the museum at the castle - Adam in litt. 26 June 1970). The fourth Earl of Montrose, who died in 1626 (DNB XXII, 335), was "a devotee of tobacco" (Buchan 1928: 34, cf 374), though it is not clear from this description how he took his tobacco. In 1634 Charles I gave a monopoly to two Scots, Sir James Leslie and Thomas Dalmahoy, the latter a servant of the Marquis of Hamilton, to sell licences to retailers of tobacco in order to ensure a good quality of tobacco and reduce the great abuse resulting from its "ungoverned sale and immoderate use" in Scotland, though it proved extremely difficult to enforce the monopoly (Chambers 1858: II, 74). According to R. Spence (1957: 20), the Scottish parliament revoked this monopoly in 1641, but in 1669 Charles II, in the course of distributing various monopolies in Scotland, allowed Sir John Nicholson of Edinburgh to put a tax on tobacco, causing a contemporary historian, Sir George Mackenzie, to observe that "custom [having] made tobacco as necessary as nature had made meat and drink,...this imposition was as grievous as if bread or ale had been burdened" (quoted in Chambers 1858: II, 332). In 1674 one Andrew M'Kairter, after having learnt the trade in Newcastle upon Tyne, London, and The Netherlands, set up as a tobacco-spinner in Leith, the port of Edinburgh (Chambers op. cit. 346-7).

None of these references indicate how tobacco was being used, but an anonymous English observer, in an account published in 1702, noted that the Scots were "fond of tobacco, but more from the sneesh-box [snuff-box] than the pipe" (quoted in Chambers op. cit. 494); while Edward Burt, writing in the later 1720s, noted that apart from the use of pipes at wakes (see p.349 n. 6 below), "it is very rare to see any Body smoke in Scotland" (Burt 1754: I, 230, 1876 ed), snuff being the Universal method of taking tobacco. A story noted in Mackenzie (1957: 169) and apparently current in Germany about the beginning of the C18, that the brains of Scottish soldiers of fortune killed during the Thirty Years' War, 1618-48, were found to have soot on them, perhaps reflects a memory of Scots being noted snuffers even before the middle of the C17 (for a discussion of this story, and other Scottish associations with snuff, see 1: VII(b)).

In 1619 a William Crawford of Camlarg who had been attempting at great personal expense to start a glassworks in Scotland, and who had discovered together with a William Hay son of William Hay of Mayne many deposits of clays suitable for making "pottis for glaswarkis, tabacco pypis, and sindrie uther vessellis and engynis maid of clay" hitherto imported, was allowed together with Hay to have the sole right for 21 years to exploit these deposits and export the clay to England. Crawford and Hay were to pay the king 4s Scots for every ton of clay transported, but it was provided that if during the 21-year period "any warkis erectit in any pairt of the said realme of Scotland for making any pypes, pottis, or vessellis of clay" near the deposits being exploited were being interfered with by the removal of this clay then the Scottish Privy Council could intervene. (It is also noted that on the expiry of this monopoly, no further monopoly on clay would be entertained from anyone.) Later in the same year, Lord Kinclevin, his heirs, and assignees were granted "secluding all utheris" to make "all sorte of earthin vessellis and wark of clay, tyill, marrill, not heirtofoir practiseit within this kingdome, and dispose thairupoun ather in or without the said realme." This was promoted in order to give employment within the country and to discourage money leaving the country to buy foreign goods; Lord Kinclevin was to bring in foreign workmen, and while the privilege would not prevent anyone from manufacturing earthenware "that they have beine accustomat and in use to mak at any tyme bygane" all those who broke his monopoly - obviously on more sophisticated wares - would be liable to confiscation of "haill veschellis, tobacco pypis, and utheris" (*Register of the Privy Council of Scotland* vol XI (1613-19) 584-5 and 604). This implies that pipemaking was one of new trades "not heirtofoir practiseit" which Kinclevin planned to introduce.

Where Kinclevin proposed to obtain his workers from is unfortunately not stated - an unpublished pipe-stem fragment in the National Museum of Antiquities of Scotland pipe collection with the mark of a fleur-de-lis within a diamond suggests Dutch contracts, for such marking is known to have been characteristic of many Dutch C17 pipes from ca.1630 (I. Walker 1971c: 111, 114-5 and refs; date quoted in Omwake 1959: 134; see also illustrations in Düco 1974: figs 9-13A, 16, 18, 24-25; for recently-recovered examples from two Dutch shipwrecks, one off Shetland in 1653, the other off Western Australia in 1656, see respectively Sténuit 1974: 236, fig 18 lower and Green 1973: 283, fig 13,A). However, this mark is known on early C17 pipes from the London area (Oswald 1960a: 50; 1961: 56) from where the original emigrant pipemakers to The Netherlands probably came, so its presence in Scotland might indicate early London influence. Nevertheless, a decorated stem from Linlithgow west of Edinburgh (Laing 1968: 127 fig 7, 19) is very similar to one from Colchester of ca.1650-80 showing strong Dutch influence (Gant 1961b: 9, 10 fig 37,3A); and other decorated stems from Linlithgow (Laing 1968: fig 7,16-17) have similar Dutch-style decoration - including one stem with the maker's name - to that noted at Nottingham (see I.II(g)). The National Museum of Antiquities of Scotland also has pipes with three-letter marks, which is a typical Dutch mark, and bowls with Dutch style "rose" decoration on the lower sides (Oswald 1970a: 140); and a very debased copy of the Dutch Sir Walter Ralegh pipe (see pp19-20 above) is known from Edinburgh (Oswald *in litt.* 4 and 11 October 1972), quite possibly a local attempt at copying the Dutch original form. Oswald notes Dutch influence in the C17 at Edinburgh as well as Kingston upon Hull, Plymouth, and possibly Ipswich (Oswald 1970b: 231, 241, pl 205 fig 26). Certainly, among the clauses in the charter of the Westminster Pipe Makers' Guild, drawn up in 1619, was one forbidding the importation of pipes from overseas or from Scotland (PRO C.66/2206 Patent Rolls 17 Jas. I, 5 Oct, No 6), which suggests that pipes may have been made in Scotland that early - they were certainly being made "overseas" (in The Netherlands) before that date (see 3: II). (H.E. Smith (1860: 213) talks of the industry at Kingston upon Hull and Beverley in Yorkshire dating to the C16 and apparently indicates apprentices from this area spread the trade, one setting up in Loughborough ca.1600 and another, Thomas Barrick or Berwick, setting up in Edinburgh about the same time and marking his pipes TB on the bowl facing the smoker. No source is given for these statements.) The accounts for May 1651 of a minister near Glasgow, if the Scots currency is correctly converted, indicate that tobacco could be obtained for the equivalent of ca.5d a lb, while an English diary of 1656 gives a price of 6d an oz (Penn 1901: 68). How the Glasgow tobacco was used is not stated. As noted earlier, Scottish-owned ships were not permitted to trade with English colonies before 1707, though there is evidence that they did and that tobacco was brought in without paying English duty (e.g. Rive 1929: 556-8), which accounts for the extremely low price recorded, as Scots duty on tobacco was low. (As late as 1722 tobacco smuggled through Glasgow could be sold in London and Bristol at a price less than the duty chargeable - a price of 5-1/2d a lb when duty alone was 6-1/2d a lb is one example given (Rive 1929: 565).) How plentiful and regularly supplied tobacco is likely to have been in the C17, is, however, perhaps a different matter (cf I: VIII(b)).

One Stephen Bell is recorded as a pipemaker in Edinburgh in 1649, and in 1650 one of the indignities inflicted on the first Marquis of Montrose (son of the Earl noted above) as he awaited execution by the Parliamentarians in the Edinburgh Tolbooth was that his guards incessantly smoked in his presence (Buchan 1928: 374-5) - unlike his father, he was unable to tolerate tobacco smoke.[5] Another pipemaker, a William Young, was apprenticed in Edinburgh in 1653 (NMAS files) and in 1669 took John Biggar apprentice for seven years, but these are the only C17 pipemakers recorded in Edinburgh by R. Hill (1964) and none is yet known from the C18, though Apperson (1914: 242) records an C18 Edinburgh tobacconist's sign of two pipes crossed, which suggests pipemaking then was at least not uncommon. However, as noted above, Edward Burt, writing in the later 1720s, observed that except at wakes it was very rare to see anybody smoke in Scotland. According to Bain (1896: 90-1), who unfortunately does not give references to his anecdotes, Robert Burns, 1759-96, smoked a pipe as well as taking snuff. Prince Charles Edward Stuart, the Young Pretender, is recorded smoking during his flight in 1746 (quoted in Mackenzie 1957: 173-4), and while he was no Scot by upbringing his French education would certainly not have encouraged pipe-smoking at a time when it was very much a lower-class custom there (3: V), so that it may have been a habit picked up during his flight. Fleming (1923: 236) says that Edinburgh-made pipes were taken on the unsuccessful Darien expedition in 1698, and although Fleming is an unreliable source he is correct in this instance, for it is noted (Burton 1897 ed: IV, 43 n.1, 34-5) that Edinburgh clay pipes were taken by this expedition and that The Company of Scotland trading to Africa and the Indies, which organized the Darien expedition, ordered 29 barrels of clay pipes, made of the "best white clay" from one David Montgomery (Prebble 1968: 97, 98) - Prebble also notes (1968: 25, 28) that tobacco and pipes were used at the formative meetings on the Darien scheme.

Unfortunately, there has as yet been little excavation of medieval and post-medieval sites in Scotland (see Laing 1969 for a review and bibliography of Scottish sites dating between Norman times and the Clearances; cf also Crawford 1968). Fairbairn (1927), excavating the site in Ayrshire of the house of John Brown the Convenanter who was shot in 1685, noted "upwards of eighty whole and very small tobacco pipe-heads of clay, all with broken stems and suggestive of a time of solitude and seclusion" but he also noted that the building had been removed early in the C19, that C17 and C18 and later pottery had been found, and that eight coins ranging in date from the mid-C17 to the end of the C18 were also found, so the pipes (which he does not illustrate) cannot be attributed solely to the C17 with any confidence. From a more recent excavation at the deserted village of Rossal in Sutherland (Fairhurst 1969) of a site probably occupied for the last 30 or so years before the Clearances of 1814-18 no pipe- fragments are noted at all, though a variety of other material was found; a similar state of affairs appears to have existed at sites of approximately the same period at Lix, Perthshire (Fairhurst 1971). Pipes datable typologically to the C17 and early C18 are found in Edinburgh and SE Scotland: among the makers' marks on the earlier pipes is the triple-towered castle which is the Edinburgh coat of arms (PSAS LXI (1926-7) 12; I. Knight 1961: 32; Dunbar and Hay 1963: 207, 208, and refs; Dunbar 1965: 244, 245; Laing 1968: 126-8).

As previously noted, there was a minor Glasgow industry in the C17 and C18 (using at least to some extent the local red clay, not ballclay, which was used for the Edinburgh pipes noted above). Thus there is evidence for a clay pipe industry in Scotland prior to 1800, but it appears to have been a very minor one. (In The Heart of Midlothian, Scott has a character smoking a short iron pipe - the incident is dated 1737 but whether Scott based it on fact or not is unknown (Apperson 1914: 230).)

However, one reason for the scarcity of pre-1800 pipemakers in Scotland may have been the apparent popularity of snuff with Scots in the C18 already noted (Fairholt 1859: 251, 274-84, cf 135; Larwood and Hotton 1866: 421; N&Q 24 July 1875: 67; Laufer 1924b: 41-2; Heal 1947: 167-70; R. Spence 1957: 21; Meadows 1957: 42-5; Nichol 1966: 9-10). The possibility that snuffing largely took the place of smoking until relatively late gains some support from the Irish evidence noted earlier. The whole field of tobacco consumption in both Scotland and Ireland will certainly prove to be a research project in itself.[6]

It appears, therefore, Glasgow (and Edinburgh and Dublin) can be added to the prevously-listed centres of pipe production as places where local influences played at least as large a part in the industry's rise and fall as more widespread influences. The industries in Glasgow, Edinburgh, and Dublin rise at a time when the industries in England are on the decline and reach their maximum prosperity during the last third of the C19 when the industry was very much dying elsewhere in Britain. Why they should have this pattern is not wholly clear, but in the case of Scotland it appears not to be directly connected with the rise of industry, for that had started well before 1800. In England there was a shift in the centre of gravity and pipe manufacture from the southern areas to the north in the early C19 (Oswald 1960a: cf fig 18 p.45 and fig 19 p.46) which appears to follow the rise of industry in the north, but with the rapid rise in population there (and the more accessible references to pipemakers in directories) it is difficult to say whether this rise in pipe-production is relative or absolute.

Certainly the rise in popularity of pipe-smoking in Ireland can hardly be ascribed to an industrial revolution; and still less to an increase in population, seeing that the period of maximum popularity of clay pipes - as evidenced by the number of Dublin makers - was during the second half of the C19, a time when after an extremely rapid rise of population starting in the C18 and continuing until the 1840s, the population plummetted by millions (Freeman 1957: 50; Trevelyan 1942: 372 n.1., 1946 ed). It seems fair to say, however, that the working classes who smoked clay pipes in northern England and Scotland and the peasantry of Ireland had one thing in common - a great deal of poverty - and that in general the clay pipe became progressively more associated with the poor throughout the C19. Irish emigration to Glasgow seems certainly to have stimulated the pipemaking industry there in the 1850s and 1860s, but the fact that Edinburgh, relatively little affected by the Irish emigrations, also had its heyday towards the end of the C19, indicates that the Scots themselves took to pipesmoking on a large scale much later than did the English. According to Clapham (1926: 60, 1939 ed) the Irish emigration to Edinburgh was earlier - 1810-30. What effect this had on the pipe industry is unknown - there are no Irish-looking names among the makers recorded in Edinburgh.

Pipemaking being an industry which could be carried out in small premises if necessary, one might expect firms to change their addresses over a period of time. This is noticeable in Montreal to a very marked degree and to a lesser extent in Edinburgh, but not particularly in Glasgow. There are some grounds for suggesting that the firms which lasted a long time - the Coghills', McDougall's, White's, for example, in Glasgow - and were therefore perhaps the most stable, did not change their premises frequently. Of course, the larger the firm the less desire there would be to move and the more dislocation there would be if such a move had to be made. White's at their closure in 1955 had been in the same premises since 1824, though they had expanded their factory considerably, erecting in 1867 a whole new building from Gibson St to Bain Sq (Fleming 1923: 243). 4 Ropewalk Lane had been Coghill property for virtually the whole of their 78-year existence, and McDougall's had occupied their 18 Charles St premises for the last 78 years of their existence. On the other hand, the first five years of McDougall's business saw the firm in three different premises before settling in the third for almost 40 years, yet the amount of McDougall material found at Old Sacramento City, California, and datable to 1846-52, precisely this period of the McDougall firm's life, indicates that pipemaking could be mobile and yet flourish. In fact, as is observed later when discussing pipemaking in East London, the kiln is the only semi-permanent piece of equipment in the trade.

In some cases where there were moves, another firm would take over the old premises, which suggests that whatever the reason for the first firm's moving or closing, it is not likely that it was because of unsuitable premises unless the first firm was moving into larger or smaller premises. This same feature of a premises remaining a pipe factory over a considerable time will be noted when discussing the East London industry. To give two Glasgow examples, a pipemaker - John Watson - is first recorded at 22 St Mungo St in 1827, having been listed at number 37 since 1824. In 1831 McFarlane and Co. who are first recorded in 1829 at number 24, join with Watson to form McFarlane, Watson, and Co. at number 22; in 1833 Mrs Watson appears (from which one may assume that her husband had died and presumably McFarlane had sold out); in 1834 the occupant is given as Alexander Wylie and he is listed as a pipemaker there until 1842, after which he appears for one more year at a different address. In 1849 a James Tomilty appears; he is succeeded in 1851 for a single year by one Alexander Bain; and he in turn for a single year by Patrick McAvoy. After a three-year gap a Michael McAvoy set up as a pipemaker in 1856 with what by now must have been considered a premises fraught with ill-luck, but he is last listed there in 1860 and after a one-year gap he appears once more at a different address before disappearing.[7]

A less spectacular example is 9 New St in the Calton. The first pipemaker recorded as occupying these premises is John Boyd for the single year 1871; D. Arnot(t) is recorded there in 1880 and 1881, and he is succeeded the next year by John McIntyre and he in turn in 1898 by his wife. The McIntyre business lasts until 1903, and the following year, and for that year only, the firm of A. Coghill, unlisted since 1899, appears.

Another example, though as no number is given it is not absolutely certain that the same property is being referred to, is Ayton Place, Old Vennel. In 1807 one T. Short appears there as a pipemaker and last appears in 1811. In 1814 an M. Short is listed there as a rope manufacturer and the next year a W. Short appears as a pipemaker. (Curiously, the first reference to White - 1805 - is also as a rope maker). The next year again, however, - 1816 - it is a Mrs Short who is listed as a pipemaker there, and she continues to be listed there until 1821. There is then a long gap until 1875 when James Herriott is listed as making pipes there, and for the next two years the occupiers are given as Herriott and McIlwraith (a photograph of Old Vennel taken in 1868 and showing well the squalid living conditions there at that time appears in Butt 1971: 65). There are other, lesser, examples of this changing, but more detailed work needs to be done on ownership of these premises - there may be some significance in the apparent lack of success of the occupiers. Non-pipemaking tenants of the premises would also have to be traced. In Edinburgh, length of tenancy appears to have been generally shorter than in Glasgow, while in Montreal, as will be shown later, there appears to have been very little stability of premises indeed.

At the same time, there is evidence that running a clay pipe factory could be a profitable business. White, McDougall, and A. Coghill were all able to own houses either in fashionable areas of Glasgow or in residential areas farther down the Clyde. Some other proprietors certainly lived at some distance from their works. However, it seems likely that the majority of pipemakers, and particularly the less successful and less well-known, ran essentially home businesses and lived on the premises. They probably participated little if at all in the export trade, for virtually the only firms represented by excavated finds are the big four - McDougall's, White's, A. Coghill's, and Murray's-Davidson's.[8]

The following are the only examples known to this writer of Glasgow material from firms other than the above (all examples have GLASGOW on the opposite side of the stem from the maker's name):

stem-fragment of an otherwise unknown W. YUILE from Fort Lennox, Quebec Province (Lemieux 1965: 15);

Stem-fragment marked STUART, from Fort Vancouver, Washington state (Caywood 1955a: fig 16, p.16);

Bowl in form of a face and attached stem-fragment marked J^{N} NIM[MO] made of red clay, from Fort Beauséjour, New Brunswick (MacLean 1971: 35 fig 26);

stem-fragment marked J. NIMMO from wrecked ship at Mallerytown, Ontario (Zacharchuk and Rick 1969: 11);

stem marked D. COGHILL from Fort Témiscamingue nr Ville Marie, Quebec province, on the upper Ottawa river ca.45 miles north of Témiscaming (National Historic Sites Service collections, excavated 1971);

stem marked G. COGHILL from Michipicoten Post on Michipicoten Bay on north shore of Lake Superior, Ontario (ex info. G. Forma, Parks and Recreation Branch, Ontario Department of Lands and Forests, Toronto; see now Forma 1972: 43, 49);

stem marked BANNERM[AN] from South Carolina (card from collections of Department of Archeology and Anthropology, University of South Carolina, Columbia);

similar stem from Fort Union III, New Mexico (R.L. Wilson 1966: 37, fig 4,1);[9]

whole pipe, stem marked WALDIE & Co from private collection in the Hamilton area of southern Ontario, said to have been found in area (T. Kenyon in litt. 15 June 1972);

presumably a stem-fragment, at least one example, described only as marked D. Widson [sic] and Glasgow, from San Juan Island, Washington state, in the Strait of Juan de Fuca between Bellingham, Washington, and Victoria, British Columbia (Saastamo 1973: 88).

Caywood dates the Stuart pipe to just before 1860 and probably later: this would agree with a C. Steuart and Co. noted from 1856 to 1860 and a C. Stewart noted in 1860 and 1861 - there may be a confusion here and these firms may be one and the same - but a T. Stewart is recorded in Glasgow 1828-32, and these dates would fall within the Fort Vancouver occupation span. Various Nimmos, probably all related, are noted as pipemakers in Glasgow between the 1830s and the 1860s; a J. Nimmo appears in 1834 and a John Nimmo in 1860-65. David Coghill and George Coghill were related to the Alexander Coghills, probably being brothers of the first Alexander. George is recorded for the years 1853-72, David for 1859-98. Three Bannerman pipemakers are known in Glasgow (so far as it at present known there are no connections with the Montreal Bannermans, see following section): they are C. Bannerman noted in 1842, John Bannerman noted 1856-60, and Carrick Bannerman noted 1862-65. John Waldie and Co. are listed 1870-1929.

In addition, there is a stem marked M^{C}L- and -TLAND from Fort

Ticonderoga, New York state (Gifford 1940: 123 pl IV fig 35), which is probably a product of Thomas McLa(u)chlan of Glasgow fl 1887-1938. No Edinburgh pipemakers with a name which would fit the fragmentary inscription are known and of the Glasgow makers McLa(u)chlan would be the logical choice in view of his working almost wholly after 1891 when Glasgow pipemakers would have had to put SCOTLAND on their pipes, as indicated on this example. The only two other Glasgow firms whose names would fit are McLuckie and Prentice 1873-74 and McLuckie and Fenton 1875-77 (Appendix VII).[10] A pipe marked LISTO- from Pemaquid, Maine (H. Camp 1968: 11 fig 5,3rd btm row; not seen by writer on visit there November 1972), is most likely a product of one of the Glasgow Listons - J. Liston fl 1873 or J. Liston jr and Co fl 1877-79. One other fragment, a stem marked McAVOY LD on one side from Fort Beauséjour (MacLean 1971: 40, fig 30c), could be a product of one of two Glasgow McAvoys recorded, but no place of work is marked on the fragment as it survives and the style of marking the name is totally un-Glaswegian. A Patrick McAvoy is recorded in Glasgow in 1852 and a Michael McAvoy at the same address 1856-60 and at a different address in 1862. A John McEvoy - apparently spelt thus - is recorded in Montreal in 1851.[11]

In summary, therefore, the Glasgow industry, like the Edinburgh and Dublin industries, was of minor importance prior to 1800. The influx of Irish to Glasgow following the Potato Famine appears to have caused a temporary expansion of the pipe industry in the 1850s but the true zenith of the trade was in the 1870s and 1880s. This latter is comparable to the evidence of the Edinburgh and Dublin industries, and in marked contradiction to the industry in English centres. The industry's decline in Glasgow, unlike that in Edinburgh and Dublin, was very protracted. This may have owed something to the innate conservatism of the working class which formed a higher percentage of Glasgow's population than it did in Edinburgh, but the main reason appears to have been the continuation at an only slowly diminishing rate of a world-wide export trade. It is possible the cigar, brier pipe, and cigarette became common in Scotland appreciably later than in England; though in Edinburgh, the cultural as well as the political capital of the country, there was a cigar-shop on Princes St by 1830, hard on the heels of the first major importations of cigars into England (see I: VII(e)), and doubtless including among its customers the upper classes already moving to adjacent areas of the New Town before the encroachment of such traders on their domain (noted in Youngson 1966: 231).

SECTION V: MONTREAL

The inclusion of the Montreal pipemaking industry among those discussed may appear unusual when all the other centres discussed are British. However, as will be shown, the Montreal industry is entirely a British (very largely Irish) import - there was no French-Canadian influence. Further, the work done so far on the Montreal industry reveals a number of extremely interesting points which can be related to ones which have arisen from the study of the other centres working in the C19 - the Irish influence, the mobility of the industry and the uncertainty of the trade, its sharp rise and decline, the intense concentration of pipemakers in the same area, the sort of area where pipemakers worked, for example.

The Montreal pipemaking industry was the subject of a very brief note by the writer (I. Walker 1966d) which has now been totally superseded by more recent, unpublished, and uncompleted work. As this work is still preliminary, only a brief outline will be given here. The first recorded Montreal pipemaker does not appear until 1847, and in this year only one is recorded. From 3 recorded in 1853, the number suddenly jumps to 8 the following year and 14 the next. Between 1855 and 1877 the number stays in double figures, reaching a maximum of 18 in 1875. From the later 1870s, however, the number falls as rapidly as it arose, the last pipemaker going out of business in 1907. Only three of the names recorded are obviously French-Canadian, but a very large proportion are Irish and a cursory examination of the entries under the various streets in the pipemaking area suggests this latter feature was not confined to pipemakers. It is tempting to see in this a reflection of the great Irish emigrations of the later 1840s and the 1850s because of the potato famine. (Pipeclay is listed in an auction advertisement in the Montreal Herald of 30 April 1814, but its association with groceries, dry goods, and other general household material including whiting suggests it was not used for pipemaking. An advertisement of 1 October that year in the same source, noting "For Sale by the Subscriber, Pipe-clay, of an excellent quality, in casks or by the hundred weight" is probably also for doorstep-whitening or some similar purpose - pipemakers would hardly have bought in quantities so small as a cask or a cwt. Pipeclay was used to make whiting and putty, these trades being known sidelines among pipemakers (Atkinson 1966: 273 n.2, 272, 273, 275; Triggs 1970 and C. Green 1973a; Cooksey MS 1). Similarly, the 200 "bls" (lbs? barrels? balls?) of pipeclay sent to Boston by the Bristol pipemaker Joseph Edwards jr in 1805 (see p. 680 below) and the other occasional exports of pipeclay from Bristol during the period 1773-1818 to places such a Tobago and Martinique (R. Price in litt. 18 January 1974) was probably for these purposes, though if indeed Boston received 200 barrels of pipeclay it might possibly have been for a pipemaking industry - so far as this writer is aware, no work has ever been done on any Boston pipemaking industry, though as noted below (p.361) one family of Montreal pipemakers in the second half of last century had come there from Boston (probably, however, from Ireland originally). Pipes supplied to the Montreal fur-traders who operated in rivalry to the Hudson's Bay Company during the period 1760-1821 are sometimes referred to as "Canadian pipes" (P. Miquelon 1971: 98-9) but this must mean pipes for the Canadian market, not pipes made in Canada).

The Great Famine, in the shape of potato blight, first hit Ireland late in 1845, and again in the summers of 1846 and 1847. Death and emigration saw the population of Ireland in the 50 years following 1845 halve. In 1847, in an attempt to ease the problem, free passages to North America were offered to the Irish, and hundreds of thousands of them, all starving and many sick, packed into ships in a manner reminiscent of slave-ships, crossed the Atlantic (over 100,000 are estimated to have died en route). Because typhus had broken out, the United States closed its ports to ships from the stricken areas, and these ships sailed to Montreal, where 6,000 Irish died in the hospital sheds erected for them during 1847-48 (based on Freeman 1957; Woodham Smith 1962; Flinn (ed) 1964: 192-7; and information from Archives Division, City of Montreal).

It is precisely at this time - 1847 - that the first Montreal pipemaker appears, to be followed by a flood of others. Unfortunately, census figures for Montreal are not available earlier than 1851-52, but between then and the census ten years later the population of the city of Montreal (which occupies only a small part of the island of Montreal) rose from 58,000 to 90,000; while that of the rest of the island rose from 20,000 to 28,000. This is almost double the increase for the succeeding ten years - 40,000 compared to 24,000 - and it is almost certain that these figures reflect the large Irish influx. The major area of Irish settlement in Montreal, however, was in Griffintown, near the opposite end of the then built-up area of Montreal from the area where all the pipemakers congregated.

However, there is a difference between the sudden flowering of the Montreal industry and the temporary expansions of the industry in Glasgow and Liverpool, for in the latter two centres Irish names are not prominent among the new makers listed. The reason for this seems most likely to be that Montreal had little if any prior history of pipemaking and that Irish immigrants were forced to make their own pipes. The first pipemaker recorded, a William Henderson, was said to have used a local clay, but at a later date English pipeclay was certainly imported by at least one business, that of Henderson and Lovelace which was the successor of one of the Henderson pipemaking firms (I. Walker 1966d). The pipeclay used by the Quebec City firm of W. and D. Bell was also from England (Anonymous 1870: 71).

A very noticeable feature of the Montreal industry is its concentration within a very small area of the city. Almost all the pipemakers worked in the area at the foot, or riverside - east - end, of what is now de Lorimier Ave (called prior to 1886 Colborne Ave and before ca.1840 known as St Helen St). The area was known as St Mary Ward, though at the turn of last century a change in boundaries made de Lorimier Ave the southern boundary for that ward and created Papineau Ward to cover the area to the south formerly in St Mary Ward.

In the earlier part of last century the area was known as the Quebec Suburbs. It lay north of the C18 city walls and comprised little more than scattered settlement along the road (St Mary St, now Notre Dame St) running north from Montreal along the west shore of the St Lawrence, and was almost on the extreme northerly end of the city limits until these limits were extended in 1883. Maps from the 1830s onwards indicate proposed streets running inland in the suburbs area, but even as late as ca.1870 much of the area back from the river was still open country and de Lorimier Ave, which was developed for only about three blocks back from the river, represented the northern limit of the continuously built-up area of Montreal. A comparison between the Fortifications Survey of Montreal published in 1871 and Hopkins's atlas of Montreal published in 1879 - both produced at a large scale - suggest that it was only in the 1870s and later that the line of de Lorimier Ave beyond St Catherine St began to be built upon. The pipemakers thus worked on the edge of open country at the northern limits of the city.

The area was, however (and still is), a predominantly industrial and working-class area. Molson's Brewery, founded in 1786, lies immediately adjacent to the pipemaking area and expanded to include a distillery plant in 1821; the "new" Montreal Gaol was built in 1831-36 at the foot of de Lorimier Ave directly opposite where a number of pipemakers were to set up business and continued to be used as a jail until 1912 (the buildings are now occupied by the Quebec Liquor Board). Before 1840 a foundry and another distillery were also in business nearby. As the second half of the century progressed a number of industrial concerns moved in - de Lorimier Ave west of the jail, for example, was occupied by a railway workshop, a glass foundry, and a nail and rolling mill by 1890. Throughout the period of pipe manufacture - 1847 to 1907 - there were at least two tobacco factories in the area, one in the premises of the second distillery mentioned above (ca.1905 this became a carriage and harness factory). During this same period the docks expanded north down the river, railways being laid along the riverside to service them in the later 1880s.

Prior to 1842 there appears to have been no development of the de Lorimier Ave area other than the existing line of road and the jail, for in that year a plan was published indicating proposed street and lot layouts for an area ca.350 ft on either side of a ca.100 ft-wide road and extending inland from Notre Dame St ca.1,500 yds. This area (including the jail, the land for which had been bought in 1831) was part of a strip extending well beyond the then western city boundary and inland for over 1-3/4 miles - to about the present line of Boulevard St-Joseph - which had belonged to the heirs of Sir John Johnson who had died in 1830 and the site of whose mansion is now under the Molson complex. It is therefore extremely unlikely that there was any occupation, at least legal occupation, in this area prior to the subdividing of the area in 1842. (At this time the land was owned by two Canadian politicians, J.S. Cartwright and W. Daly.)

As noted above, most of the area inland along the line of de Lorimier Ave was still undeveloped as late as ca.1870, though the proposed layout with its street names did continue to appear on maps after 1842. It thus appears that when the pipemakers started settling in the area less than ten years after than the sub-division had been proposed they were settling a new area, and not in an old industrial quarter or in cheap slum property. However, the evidence, as well as the present-day condition of the area, indicates that it must have been designed as a working-class area (FIG 130).

Unfortunately, numbering changes on the various streets make locating some of the pipemaking premises difficult, and the area with the great concentration, especially at the beginning of the period - the 1850s and 1860s - is the south side of the foot of de Lorimier Ave; the adjacent small streets of Brant Lane, Eire St, and Kent St; and the end of Dorchester St which meets de Lorimier Ave between Erie and Kent Sts, which was almost entirely cleared for the approaches of the Jacques Cartier Bridge built in 1926-30. (Brant Lane, originally called William St and still called William Alley on the 1879 plan though it was known as Brant Lane long before that date, no longer exists; it lay south of Eire St and immediately north of Craig St. Kent St is now called Falardeau St). FIG 131 shows Erie St in 1973 looking south towards Dorion St; the now-cleared area on the west side of the street (rt of photograph and behind photographer) was occupied by a number of pipemakers. FIG 132 shows Dorion St (known last century as Shaw St) looking west from its junction with Lagaucheterie St: the arrowed buildings either held pipemaking premises or are on the site of pipemaking premises (no investigations have been made of the buildings). The nearer arrowed premises (now 1056-60 Dorion St) was 32 Shaw St, occupied 1870 by Dennis Murney who is recorded at a variety of addresses between 1856 and 1878; the farther (now 1094-1098 Dorion St) was 48 Shaw St, occupied 1867 by Richard Gibson, a maker listed for that year only.

(This historical background is based primarily on a study of C19 and C20 maps and plans of the area and on Atherton 1914: II, passim and De Volpi and Winkworth 1963: passim; also on information supplied by the city of Montreal Archives Department.)

One feature obvious from the directory entries is the rapidity with which pipemakers changed their address within this small area, even allowing for an apparent numbering change on de Lorimier Ave. In addition, a number of pipemakers are listed at the same addresses, suggesting communal kilns and workshops were used in the trade. There must in fact have been a veritable pipemaker's ghetto in the area.

In dealing with the Glasgow industry it was noted that the owners of some of the biggest firms appeared able to afford houses in fashionable areas, and there is one example of something similar in Montreal involving one of the Henderson pipemakers. As already noted there were several Henderson pipemakers, and the distribution of Henderson-marked pipes suggests that one or more of these firms had a far more important business than the other Montreal makers. This firm may have been that of James M. Henderson, who was latterly associated in the business with his son of the same name; one of these James M. Hendersons was also associated with an E.M. Lovelace in a firm which imported pipeclay from England. The evidence suggests that initially James M. Henderson lived in premises adjacent to his factory at the foot of Colborne (de Lorimier) Ave, but during the period 1866 to 1872 he is listed as living at 296 Colborne Ave while the factory is at number 114. The latter number was situated on the south side of the street immediately below St Catherine St, a corner which at that time marked the farthest-north expansion of the continuously built-up area of Montreal. Number 296, on the other hand, is called Woodbine

Villa on the 1871 Fortifications Survey, and lay on the south side of the road about one-third of a mile west of St Catherine St. At that date it still lay well away from the nearest built-up areas and was built on the banks of a small stream. By 1879 urban development had spread beyond this area both to the north and west and it was no longer in the country (the site is midway between Lafontaine and Ontario Sts and now covered by a municipal garage), but Hopkins's atlas of this date, which lists the owners of large properties, lists a James M. Henderson here. Further, the adjacent property to the west, number 310, is marked in 1879 as belonging to the Dow estate: this must be the estate of one of the Dow brewing family, which reinforces the suggestion that the area prior to urban development had been favoured by the well-to-do. (Buildings appear on the Henderson and Dow properties on the 1847 map which showed the projected subdivision of the area, confirming that these properties dated from well before the development of the area.)

As noted when discussing the Glasgow and Edinburgh industries, it seems likely that rapid changes of premises, including firms taking over properties of other firms which then move to other premises, suggests an unstable industry with many speculative ventures. As with the Glasgow industry, there are several firms which last a considerable time (relatively speaking, in an industry lasting only 60 years) and are thus presumably the most stable; but there are many names which appear for only a very few years, and many address changes, suggesting that competition was fierce and failures frequent. As might be expected, therefore, from an industry that rises and declines as rapidly as does Montreal's, there is every suggestion of great instability.

Further, to judge by the frequency with which Glasgow pipes occur on New World C19 sites, Glasgow was able to command a much wider market than Montreal, and this may have contributed to the instability of the Montreal industry. The brier pipe and the cigarette (the American cigarette industry becoming mechanized in 1880) must have contributed to the decline of the Montreal industry; the Glasgow industry, though in terms of number of makers at its zenith ca.1880, must have been losing its export market about the same time the Montreal industry was declining, for as noted when discussing the Glasgow industry few Glasgow pipes datable to post-1891 on the basis of their being marked SCOTLAND instead of GLASGOW have been found on North American archaeological sites.

Unfortunately, there appears to be little evidence available to indicate the size of Montreal firms. In 1856 Neil Doherty's firm, which had been established six years previously, employed 20 to 25 people and manufactured yearly "from 4500 to 5000 boxes, which are all consumed in the Canadas [i.e. Upper and Lower Canada, the provinces of Ontario and Quebec]" (Anonymous 1856c: 137, 1952 ed). The firm of Henderson and Son, one of the Hendersons mentioned above, is recorded by the same source as being founded in 1851, and in 1856 employed 100 hands and produced annually 15,000 boxes with means of extending the quantity to 25,000. The source calls the products in quotes "Henderson's Tobacco Pipes" as though this was their title (ibid.: 138) - this may possibly be the reason for some pipes which have been found with HENDERSON'S on the stem, as opposed to those with simply HENDERSON, which were presumably made by one more of the other makers with this name.

Unfortunately, no idea is given of the size of a box of pipes, or the number of pipes it would hold, but the fact that Henderson and Son employed 100 people indicates they were a relatively major concern. As the source referring to Doherty and Henderson and Son mentions no other pipemakers, although other sources indicate at least ten others by 1855, it seems likely that Doherty and Henderson and Son were the largest firms at this time. This in turn would suggest that the other pipemakers known at this time ran very small businesses with perhaps fewer than a dozen employees - they may even have been purely family businesses with ony three or four workers altogether. The firm of W.H. Dixon and Co, which took over the business of a William Henderson in 1867 and was also known as the Canada Pipe Works, was winning prizes at exhibitions in the 1870s, suggesting it was of some reputation; an advertisement of 1888 noted the firm as making "D.T. [sic - T.D.] and fancy pipes" and supplying English pipeclay (Collard 1967: 337). It closed in 1894.

It is not clear how widespread Montreal-made pipes were traded. They occur in eastern Canada and Ontario (e.g. Barka 1965: 443; Gall 1967: 51-2 but with wrong dating; Dawson 1969: 45-6; 1970: 48; I. Walker 1971d: 25 and 30) but even at Fort Lennox, only ca.30 miles south of Montreal, while Montreal-marked fragments were the ones most commonly found during the 1965 excavations (Lemieux 1965), only two Montreal firms are represented by name and only one of these occurs frequently. Indeed, this name - Henderson - occurs far more often than all the others put together, though this may be partly because there is more than one firm with this name. There were 88 marked HENDERSON and 5 marked HENDERSON'S, and 4 marked R. BANNERMAN. Pipes by another Quebec maker, Bell of Quebec City, were recorded 4 times. Glasgow is represented by White and A. Coghill (11 fragments each), McDougall (7 fragments), Yuile - whose name does not appear in any Glasgow directory as a pipemaker - once, and an unidentified DMG/SCOTLAND once (this last should probably read DMD or DM^{c}D - a post-1888 catalogue of McDougall's notes the firm's trade-mark was D·M·D inside a diamond and also illustrates a pipe with DM^{c}D on the stem. A TD pipe with DMD on one side of the stem and SCOTLAND on the other comes from a dump near Dundas and another from a dump at St Catharines, both in southern Ontario (T. Kenyon *in litt.* 15 June and 18 July 1972)). (Gambier of Paris is also recorded once). At Fort Wellington, near Prescott, Ontario, ca.110 miles SW of Montreal up the St Lawrence, Henderson pipes - 17 examples - again made up more than half the total of pipes found with makers' names in the 1968 excavations (Wylie 1971: 78): Bannerman, Dixon, and Bell were represented by one example each while Glasgow-made material was represented by Coghill (six fragments), White and Murray (three fragments each), and Davidson (one fragment). At Fort Coteau-du-Lac, however, which is just inside the Quebec border and only ca.45 miles SW of Montreal up the St Lawrence, excavations of a mainly C19 fort produced rather more known Scottish-made pipes - 189 - than Montreal-made - 168. Here pipes marked DIXON (1) and DIXON'S (2) occurred in addition to those marked HENDERSON (93) and HENDERSON'S (53) as well as 2 marked R. BANNERMAN and 17 simply marked BANNERMAN. There were also 9 Bell of Quebec City fragments. (In addition, there were three English makers represented by 27 fragments, one example of Prince of Gouda, and one of

Fiolet of Saint-Omer (ex info. Miss E.A. Wylie).)

Even if it were not the habit of all Montreal makers to put their names on their products - and one would have thought in such a fiercely-competitive industry such advertising would have been important - the presence of sizeable quantities of Glasgow pipes at sites relatively close to Montreal suggests local pipemakers had only limited success in combating Glasgow makers, though of course as the Montreal industry dates only from the mid-C19, sites with occupation from before that period would have a biased proportion of non-Montreal material. However, with the exception of one Doherty stem from the Grande-Chute site in Quebec province (D.S. Robertson in litt. 4 July 1971) and at least two from the Montgomery Lake site Number 4 in Ontario (B.M. Mitchell in litt. 2 August 1969; D.S. Robertson in litt. 14 January 1975), both sites in the upper Ottawa valley; and three Murphy stems - one from Fort Wellington, Ontario, and two from Lower Fort Garry, Manitoba (in collections of the Research Section of the National Historic Parks and Sites Branch in Ottawa), all of buff clay, one of the latter with a bowl and possibly reading R. Murphy - this writer has so far neither seen nor heard of any of the names of other makers known to have been working in Montreal occuring on pipes. (Neil Doherty is recorded 1850-57; a Richard Murphy is listed in 1864, a Thomas and a Mathew in 1871.) When one considers that a Glasgow-made pipe at least latterly cost at a minimum twice as much when sold in Montreal as in Glasgow because of added costs of freight, duties, and allowance for broken goods (Rodger in litt. 17 January 1972) it does seem surprising that Glasgow pipes should have outsold native North American-made pipes: granted North American makers would have had to import pipeclay from England, but bulk carriage of this would have been cheaper than for pipes, duties would have been lower, and there would have been no breakage.

Outside eastern Canada and Ontario, pipes made by one or other of the Hendersons have been found at Lower Fort Garry, near Winnipeg, Manitoba (ex info. writer's wife); and in the United States from a site in Maine (Fox 1972: 33); on various sites in Michigan (Herrick 1958: 5; Gibson et al. 1960: 47; Fitting 1965: 68, pl xxxix; Brose 1967: 64; Crumley 1973: 269); in Ohio (Omwake and Becker 1965: 137-9, 149; Angeloni in litt. September 1971); in Minnesota (Hagerty in litt. 12 December 1967); and, much farther away, three sites in Wyoming (R.L. Wilson 1961: 130-2, pl V,3-4; 1971: 30, 67 fig 16,A; 44, 76 fig 31,1). This tends to support the view that the Henderson makers were the most important in Montreal. Outside Quebec, Bannerman and Dixon pipes have been found at Lower Fort Garry (ex info. writer's wife), while Bannerman pipes have also occurred at a site in Maine (Fox 1972: 33); Dixon pipes at Portland Point, New Brunswick (Barka 1965: 443) and Fort Walsh, Saskatchewan (material in collections of Research Division, National Historic Parks and Sites Branch, Ottawa); and a red clay stem-fragment marked D. FORD/MONTREAL, a maker who is recorded 1857-73, has been recovered from the Pigeon River at Fort Charlotte, extreme NE Minnesota, on the United States-Canada border at the western end of the Grand Portage trail (Birk in litt. 26 January 1973; 1975: 83), all of which finds indicate that widespread distribution of Montreal-made pipes was not confined solely to the Hendersons' products.[12] However, it is only fair to point out that excavations of C19 sites in North America are only beginning, and future discoveries may profoundly modify present knowledge (a Bell of Quebec City stem was recovered at the same site in Maine - Indian Island, at Old Town, near Bangor - as the Henderson and Bannerman stems noted above (Fox 1972: 33)).

One interesting feature connected with the Montreal pipe industry and at present being investigated is the apparent founding of the Detroit clay pipe industry by immigrants from Montreal. Virtually all the Detroit makers' names are those already recorded in Montreal, and confirmation of a Montreal origin comes from the 83-year old daughter and niece of two Detroit makers who is still (1969) alive and who records her parents came from Montreal, the mother (wife of Michael O'Dwyer) being a pipe trimmer. The uncle, John, may be the John Dwyer [sic] noted in Montreal from 1872 to 1874. The two O'Dwyer brothers worked in Detroit from 1880 until 1903 when John died and the business closed. In 1881, and apparently for that year only, O'Dwyer and Hamlyn Co is listed - the Hamlyns were another Montreal family of pipemakers, one being recorded in Montreal from 1873-77 and appearing in Detroit in 1878 - and pipes marked ODWYER & HAMLYN/DETROIT, ODWYER BROS/DETROIT, or simply ODWYER BROS without the place of origin (cf Brose 1967: 64) are known. As the ODWYER BROS example recorded by Brose without the "Detroit" comes from a layer datable to 1893-95 it is tempting to suggest that the "Detroit" had been taken off, or allowed to wear off, the moulds after 1891 when imported items had to bear their country of origin and native American industries were thus to some extent protected and felt less need to advertise where they were made. Certainly, one ODWYER BROS fragment with "Detroit" missing has a blank flattened area as if the place-name had been removed. Miss O'Dwyer also records her parents came to Montreal from Boston - it seems likely they arrived there from Ireland as a result of the potato famine.

The first Detroit pipemakers appear in 1878, just as the Montreal industry is beginning to decline; this decline, and the considerable instability noted in the Montreal industry, doubtless caused the migration of some makers to Detroit. The industry continued there until 1901, when the last firm, Deffley's - a family noted in Montreal from 1856 to 1875 - is recorded for the last time. As in the case of Montreal, there is evidence of instability in the Detroit industry; and as in Montreal and other pipemaking centres noted, the Detroit pipemakers congregated in one extremely small area of the city (the Detroit information is based on E.M. Green 1969).

To sum up therefore, the Montreal pipe industry was confined to virtually the second half of the C19, rising rapidly in size from a single maker first recorded in 1847 to 18 makers in 1875 and declining as rapidly to the disappearance of the last maker in 1908. The industry concentrated in a working-class suburb of eastern Montreal; it had a large Irish element among its manufacturers and may have had much of its trade among Irish immigrants arriving during and after the Potato Famine in Ireland. Its largest firms traded over Quebec and Ontario and as far afield as New Brunswick, Maine, Michigan, Manitoba, Saskatchewan, and even Wyoming, but despite its obvious theoretical advantages the Montreal industry was never able to prevent the Glasgow industry from dominating the North American market. When the Montreal industry began to decline in the later 1870s, several pipemakers moved to Detroit and worked there until 1909, when the last firm closed. There as in Montreal, the makers worked in one small part of the city.

SECTION VI:
EAST LONDON

East London - the initial letter of "east" is traditionally spelt with a capital - is a cultural rather than a strictly geographical area (cf Pollins 1961: 15-16) and has no political definition. Tongue (1971: 102), describing the new London boroughs of Hackney, Newham, and Tower Hamlets, puts it rather well: "[they] comprise that amorphous, sometimes apparently shifting mass which is instinctively recognizable to East Londoners as East London but which has no clearly defined boundaries, neither ethnological, nor geographical, not yet administrative." As defined by Sinclair (1950: 32-3) it covers 72 square miles and comprised - before the reorganization of London boroughs in 1965 and the expansion of the county of London to include all Middlesex and parts of Essex and other counties - 13 boroughs in the counties of London and Essex. The term here, however, is generally used in an older and more restricted sense to describe what the Post Office calls London E.1 and E.2 and what used to be the boroughs of Stepney and Bethnal Green before they and the borough of Poplar became the borough of Tower Hamlets in 1965 (for a history of the name Tower Hamlets see Power 1965). This area includes the hamlets (as they formerly were) of Wapping, Shadwell, Ratcliff, Limehouse, St Botolph without Aldgate, Whitechapel, Shoreditch, and Bethnal Green, all then in East Middlesex and most of them part of or formerly part of the once-vast parish of Stepney (George 1925: 406-7, 1966 ed, Barnes 1967: 13-18). The first four named lay along the north bank of the Thames from the Tower to the Isle of Dogs; the remainder lay east, NE, and north of Aldgate, the main eastern gateway to the City of London.

In the earlier C17 there is a very large number of pipemakers recorded in the parish registers covering these hamlets: 36 in the first half of the century, 26 of these from the four riverside hamlets and 19 from Ratcliff alone (Oswald in litt. 9 January 1968, cf a figure of 48 for the period to 1650 over a larger area of East London in Oswald 1970b: 229). At the beginning of the C17 the riverside hamlets had by far the larger part of Stepney's population, Ratcliff being the most populous of all. Predictably, the vast majority of the riverside population were connected directly or indirectly with shipping (East London History Group 1968). In the second half of the century only 12 pipemakers are noted from the same sources, of whom 8 came from the riverside hamlets; but other evidence noted below suggests this is an under-estimation. However, the Finsbury plague lists from 1653 to 1667, checked against the St Giles without Cripplegate registers, give 69 makers, presumably all outside the walls and on the City's NW boundary (Oswald in litt. 9 January 1968), suggesting a concentration there. This finds some confirmation in the London pipemakers' guild apprenticeship indentures for the period 1689-1734 - all that survive - where the general area of work of the freeman involved is noted in 40% of the indentures. Half of these freemen worked outside the City, and the half inside the City worked on the boundaries, with the greatest concentration in the Cripplegate area. Other concentrations were in Westminster - to the west of the City - and Aldgate and Whitechapel to the east, all slum areas (Atkinson and Oswald 1969: 174; Oswald 1970b: 229).

The 1695 list of inhabitants of the City is extant for 80 of the 97 parishes within the walls (Glass (ed) 1966) but unfortunately occupations are listed in only a few instances. However, in the presumably random cross-section of trades which are noted, pipemaking does not appear - nor does potting - and certainly in 1806 a lease of a property in Cheapside specifically forbade pipemaking and other offensive trades (Atkinson and Oswald 1969: 174). Among these offensive trades were those of founder, slaughterman, brewer, and tallow-chandler; but if indeed there was earlier a specific ban on certain trades including pipemaking - perhaps one on kilns in built-up areas because of fire-hazard - it does not appear to have included such trades as smithing, to judge by those recorded in the 1695 census. Further, any concern at that time about keeping out disagreeable trades does not appear to have spread to such noisome examples as skinning - a number of skinners are recorded in the census. The strictures of the 1806 lease do not appear to have been unique nor confined to London, however: a deed of 1822 for a property in Macclesfield in Cheshire prohibits the "trade of bleaching...and pipe making or any other offensive trade" (quoted in G.C. Spence 1942: 57); and an 1858 comment on the smells in one slum area of Camberwell in South London included the smell of hearthstones - blocks of whiting used on hearths, doorsteps, etc and often made by pipemakers (see p.555 below, p.341 and n.3) - in the prevailing melange of haddocks, oranges, mortar, soot, winkles, rotten rags, and herrings (noted in Dyos 1961: 111).

The eastern and nortern suburbs and Southwark appear to have housed much of London's general industry by the beginning of the C17 just because these areas were beyond City control (Unwin 1904: 218-9, 1957 ed; 1908: 266-9; 1963 ed; George 1925: 18-19, 1966 ed; Reddaway 1940: 34-5, 42, cf 82-4, 306-8, 1951 ed; Dyos 1954: 59 and 61 and 1961: 34-6 and refs) - as noted below, East London started to a considerable extent as an industrial area - but in the second half of the C17 industries such as lime-burning and dyemaking were still continuing in the City (Pearl 1961: 15-16). When one considers that as early as 1285 and 1307 there had been a whole series of complaints about and prohibitions against lime-burners and smiths in Southwark, Wapping, and East Smithfield using coal so that an "intolerable smell diffuses itself...to the annoyance of the magnates, citizens and others there dwelling and to the injury of their bodily health" (R. Smith 1961: 3; cf Nef 1932: I, 157) it is clear that restrictions on industry were never very effective, and one wonders whether a prohibition on pipemaking could really have been so effective as to remove pipemakers from the City.

While East London is made up of many areas each with their own economic and historical background, the area has certain features in common. The City, in medieval times and later, applied a rigid closed-shop policy on craftsmen through its guilds, and Richard III placed restrictions on foreigners in the City, forbidding them to keep apprentices or other workers: these two points appear to have been the major catalysts in the settlement of East London (cf Unwin 190-8: 243-7; 1963 ed). Much of the open land surrounding the City was owned by abbeys and priories; these lands were thus liberties, where neither city aldermen nor county sheriffs had jurisdiction, and they continued as such after the Reformation (H.G. Owen 1965: 81-2). The kernel of East London in fact was the liberty of St Katharine's by the Tower where the aliens discouraged by Richard III settled.

The C15 and C16 saw England transformed from a nonentity of a country to a major trading and commercial power. The reigns of Henry VII and Henry VIII saw not only the beginning of English trade and seapower (at the beginning of the C15 English maritime trade had been largely in the hands of foreigners: the Hansa slowly lost its powers in England only during the C16) but the arrival of skilled artisans from abroad. Tudor gunners, for example, were nearly all German or Dutch - there was a gunfoundry in Houndsditch, and another in East Smithfield. The growing opulence of the extravagant Henry VIII and his desire to enter the sophistication of the Continent resulted in French clockmakers, French silkweavers, French chefs, and many foreigners in the felt hat and above all the leather trade arriving in London. Shipping arriving in the Pool below the Tower brought Scots, Flemings, Frenchmen and others. Inevitably there was an outbreak of xenophobia, in which London apprentices took a leading part. As a result, 12 apprentices were hanged and quartered, and the laws against aliens having apprentices tightened. Aliens in trades in the City and for two miles outside were to be controlled by the guilds, but this proved difficult to enforce, for by this time there were 6,000 or 7,000 foreigners in and around London, and it had little effect on the expansion of industries introduced by skilled foreigners.

The initial movement of aliens to the east of the City, the proximity of the Pool, the presence of the Tower where there was a demand for skilled labour, the presence of the City itself as a market for goods, all set off a cycle of ever-increasing settlement by subsequent foreigners who tended to come to an area where others of their language and trade already were. The list of nationalities and trades could be vastly extended; the liberty of St Katharine's housed the foreign glassmakers and goldsmiths, rivals of the respective City guilds, though apparently not always in strife (Unwin 1908: 246, 1963 ed). By 1540 one-third of the London population was foreign, and some areas were virtually wholly populated by foreigners. As the religious storm broke in Europe large numbers of French and Low Countries refugees came to England, many settling in East London.

By the end of the C16, the time when the pipemaking industry was beginning, therefore, a predominantly cosmopolitan and industrial atmosphere existed: in 1592 a writer spoke of the rogues and vagabonds who found refuge in the suburbs and liberties - the unemployed and unemployables who always gravitated to such areas - and Shakespeare refers to the local toughs of the eastern suburbs. It is not coincidence that Burbage's first theatre, with all the low associations such establishments had, should be in tolerant East London, away from the hostile City Fathers but near enough the City for patrons. The split between East and West London which still exists has been a feature of London development since the second half of the C16 (George 1925: 75, 1966 ed).

To this must be added a third factor: the growth of English seapower. Ratcliff had been a port from at least the middle of the C15, and in the Elizabethan period it became one of the chief centres for maritime exploration. Ratcliff Cross - a wayside cross which became a sailors's landmark - is noted by Hakluyt, and shipwrights began to build themselves large houses there. In 1553 Willoughby and Chancellor set sail from Ratcliff to search for the North-East Passage, and though Willoughby and part of the expedition perished, Chancellor reached Moscow via Archangel and as a result the Muscovy Company was set up. Other expeditions attempting to find the North-East Passage sailed from Ratcliff in the years following. So did Frobisher in search of the North-West Passage. William Burrough, Comptroller of the Navy and second in command to Drake late in Elizabeth's reign, lived in Stepney near his ships; Sir Humphrey Gilbert lived in the "pure air of Limehouse" (as a writer in 1605 described it - quoted in Pevsner 1952: 410 and Pearl 1961: 12 n.9) and his half-brother Ralegh lived at Poplar and later at Mile End. A native of Ratcliff and another of Aldgate sailed the first English and Dutch ships to Japan. Hudson used St Katharine's Dock (not the present one) as a departure point for his expeditions. In 1614 the East India Company built a dock at Blackwall (Ratcliff and Blackwall were the harbours of Stepney).

A feature of London from the later C16 onwards was its rapid expansion both in area and population (see for example Maps of Old London 1908 and Trevelyan 1942: maps pp587-97, 1946 ed) despite repeated attempts by the City to prevent this (Reddaway 1940: passim e.g. pp34-5, 1951 ed). By 1695 London is estimated to have had a population of ca.500,000 while Norwich and Bristol, the two largest cities after London, had populations of ca.29,000 and ca.25,000 respectively (P. Deane 1965: 14). The built-up area was expanding to link the City with Wapping, Shadwell, and Limehouse. With the removal of Execution Dock farther downriver, "a continuall streete, or filthy straight passage, with Alleyes of small tenements or cottages builded, inhabited by saylors victualers, along by the riuer of Thames, almost to Radcliff,..." had appeared by 1598, where 40 years previously the area had been open country (Stow 1908 ed: II, 70-1). Many small tenements had also recently been built along the highway from the City to Ratcliff, replacing the elms formerly there; while Ratcliff itself was expanding east to Limehouse, the "faire hedges, long rowes of Elme, and other trees" lining both sides of the highway having been similarly replaced by buildings (Stow 1908 ed: II, 71 and 261 n.). Before the second half of the C17, slums had already appeared in Stepney, Wapping, Poplar, and Ratcliff (cf Trevelyan 1942: 289, 1946 ed) and the plagues of 1625 and 1665 took their greatest tolls in Stepney parish. Yet paradoxically, in 1666 the Great Fire was to force 80,000 people from London into the suburbs; and of the 20,000 who did not return, prefering to remain in the suburbs and set up business, many settled in East London, beyond effective City control but still near enough for markets (Reddaway 1940: 300-8, 1951 ed; Mitchell and Leys 1958: 178, 1963 ed; Priestly 1966: 225, 232; Barnes 1967: 17-18). One cause of slum property was that copyholders in the manors of Stepney and Hackney were discouraged, by the customs of these manors, to make leases for more than 31 years, a factor which did not encourage permanent building (George 1925: 75, 1966 ed and Pearl 1961: 12 n.9).

As early as 1627 there had been an attempt to bring liberties, outlying parishes, and the City together with some sort of overall control with the Bills of Mortality which parishes in the City and surrounding area had to return. The number of parishes which had to make these returns was increased, Whitechapel being added in 1629 and a great extent of East London - Hackney, Islington, Newington, and Stepney - being added in 1636. In 1613 the Privy Council proposed to group the suburbs into districts, but the City, though worried about the number of artisans settling in the suburbs, strenuously objected to a proposal to incorporate the suburbs, fearing rivalry. Nevertheless, Charles I did proceed with incorporation, and by 1637 the corporation was functioning, and regulations for trade apprenticeships and freedoms were in being. However, the suburban craftsmen did not take up their freedom when called to do so - perhaps not surprisingly, if many had indeed moved or been forced to move from the City because of Guild restrictions - and the City still remained hostile to the scheme, so that with the advent of the Civil Wars the whole idea ended. Similar proposals after the Restoration met with the same opposition from the City, so that East London was able to continue its largely independent course (Reddaway 1940: 44, 1951 ed; Priestley 1966: 47-9).

Thus East London, then as now, was a crowded, bustling, cosmopolitan, independently-minded area, particularly suited to small businesses, and exhibiting a feature very noticeable last century and indeed to a considerable extent today - the close juxtaposition of wealth (if not sophistication) and dire poverty.

East London, especially Stepney and the Minories, early acquired a reputation for nonconformity: even in Mary I's reign, 1553-58, when Protestants were being burnt, Stepney appears to have been a refuge. From 1559 for much of the C16 the Minories were the centre for radical nonconformity, and certainly by 1579 nonconformity was firmly established in Stepney (H.G. Owen 1965; Hill and Frere (eds) 1891: vii). After 1640, and indeed into the time of the Industrial Revolution, much of the area - indeed, most of the eastern suburbs on both sides of the river - had a reputation for radicalism and nonconformity (Pearl 1961: 38-42; cf Bezodis et al. 1957: 3; E.P. Thompson 1963: 23, 1968 ed), and several prominent Parliamentary Puritans lived in these areas. The first English Baptist Church was opened in 1633 in Wapping; in 1644 there was a meeting-house of Independents in Stepney (Hill and Frere (eds) 1891: xvi; Pevsner 1952: 411). In 1684 the justices described the inhabitants of the Tower Hamlets as "generally very factious and poore", the factiousness referring to their having "sixteen large public conventicles as big as most churches" and in continuing to hold private meetings when the conventicles had been suppressed (quoted in George 1925: 76 and 332 n.8, 1965 ed). East London was a place where "the social and racial composition...made it very difficult to attract Anglican congregations" (Bezodis et al. 1957: 9 cf Inglis 1963: 49) - this comment was made specifically about the Jewish influx to C19 Spitalfields and Mile End New Town, but it is true for a wider period and area. How difficult can be seen by the closure between 1911 and 1920 of four Anglican churches built between 1839 and 1875 in Spitalfields and Mile End New Town (Bezodis et al. 1957: 8-9; Barnes 1967: passim).

The apparent lack of pipemakers in the City suggests that this craft was actively discouraged there, for whatever reason, so it seems probable that their concentration in East London and other suburbs is a result of this hostility. It is tempting to suggest that the very marked concentration of pipemakers in Ratcliff was due to the number of sailors in its port and perhaps to Raleigh's having lived nearby. The drop in Ratcliff makers in the second half of the C17, if indeed a reality, may have been due to the general overall increase in pipe manufacture which caused makers to move to other markets and at the same time extend markets so that they did not need to huddle together. It is unlikely that Ratcliff ceased to be so important as a port in view of the expansion of shipbuilding which marked Pepys's period at the Admirality in the second half of the C17 and the building of the first two wet docks on the Thames, one at Blackwall and the other at Rotherhithe (the Howland Dock), but perhaps there was an evening up of prosperity throughout the Thames-side shipping points.

The economic background to the C19 East London pipemaking industry is rather different from that of the C17 industry, but in at least two aspects, the influence of the port of London and the cosmopolitan tradition of the area, there is a common thread. A writer ca.1780, observing that a large part of the inhabitants of the East London riverside included "sailors and other workmen, who are employed in the construction of ships" was only reiterating the comments of the justices of the Tower Hamlets a century earlier, when they noted in 1684 that a major part of the inhabitants there included "seamen and such who relate to shipping" (both quotations in George 1925: 76, 1965 ed).

In the C18 the metropolitan population of London rose from 600,000 to 900,000 and the foreign trade of the port quadrupled: 1,775 vessels could, it was asserted, be seen on the river between Blackwall and London Bridge, and some 3,500 lighters and similar small craft were engaged in taking the goods from the ships to the shore. There porters picked up the goods in small amounts and took to warehouses and other premises all over London. Meanwhile the East India Company left its Lascar seamen to beg in Wapping, Shadwell, and Poplar for months at a time, between voyages (George 1925: 143-5, 1966 ed).

Robbery by everyone from customs officials and shipmasters to lightermen and porters, and mudlarks who collected material thrown overboard from ships at night, lost London merchants £506,000 a year it was alleged in 1800 (quoted in Ashton 1955: 72, 1961 ed; cf Howgego 1967: 76). It was this figure which persuaded the West India merchants, backed by the City Corporation, to build the West India Docks at Poplar with wharves and warehouses walled to prevent theft.

The East London of Mayhew and Booth and of Dickens and Jack the Ripper may be said to stem directly from this venture and those that followed, and from the impact on the area of what is loosely called the industrial revolution. The laying of the foundation stone of the West India Docks in 1800 laid the foundation of events which could never have been dreamt of at the time. The West India Docks opened in 1802; three years later the London Docks opened, to be followed the next year by the East India Docks. The second-named's construction disembowelled much of Wapping and Shadwell (cf Dyos 1957: 29 n.2); the Shadwell brothels and lodging-houses moved to Limehouse. Following these docks came the Surrey Commercial on the site of the Howland Dock on the south side of the river. Private companies hurriedly built their own docks, including the Regent's Canal Docks and the St Katharine Docks. The later, uselessly small and constructed in 1825-28 during a fit of inter-company rivalry, was built by destroying warehouses, sheds, and 800 houses, and turning 11,300 people into the streets (Sinclair 1950: 245; P. Carter 1969: 52; Howgego 1967: 92-5; Renton 1969: 25 - there are slight differences among these accounts and Carter thinks this mammoth displacement of people was "probably a blessing in disguise.") At the festivities to mark the opening of the dock, bands played The Roast Beef of Old England to signal that food was being served (Howgego 1967: 93 and 95); it is not recorded that the 11,300 homeless were invited). The broad Commercial Rd, with its extensions the East and West India Dock Rds, was laid out in 1803 and built in the following seven years, the eastern and western ends cutting through already built-up areas.

There was then a lull in dock-building for some 20 years, while railway-building from the 1830s and for much of the century occupied speculators, carving ruthlessly through large areas of poorer London (cf Dyos 1955a; 1955b; 1957; Mitchell and Leys 1958; 286-7, 1963 ed) and setting up ripples of migration ultimately extending as far as Tottenham and Walthamstow.

The docks attracted labour to an area already beginning to be crowded by the late C18; their construction put tens of thousands of those already living in the area out of a home. On top of this, the tradition of the area as a refuge for foreigners was responsible for adding hundreds of thousands to the population. In 1709 Germans fleeing religious persecution in the Palatinate had settled in East London: in the 1830s St George's-in-the-East was still known as "Little Germany" (Keeling 1970: 127). An observer writing ca.1780 noted that "the east end, especially along the shores of the Thames [was] inhabited...by a great part of the Jews" (quoted in George 1925: 76, 1965 ed). Throughout the C19, waves of European immigrants reached East London - in the 1830s Poles, fleeing an unsuccessful rebellion against the Russians; in the 1840s to 1870s Irish fleeing famine in their native country; in the 1880s, 1890s, and the first decade of the C20 Polish, Russian, and Rumanian Jews (Leslie 1963: 73-7; Leech 1967: 10) fleeing persecution. The 1881 census recorded 16,000 persons in Stepney born abroad; by 1901 the figure was 54,000 (Keeling 1970: 127).

From the middle of the C19 the modestly-prosperous independent shopkeepers and tradespeople - "the solid core of Dissent" (Inglis 1963: 119) - moved to less squalid areas (cf Dyos 1955b: 91), and with their a departure the nonconformist churches lost the backbone of their support (Sinclair 1950: 77), both nonconformity and Anglicanism being replaced by the influx of Jews (Bezodis et al. 1957: 8-9). In the earlier C18, when St George's-in-the-East, Stepney, was built, its parish was inhabited by shipowners and shipmasters, and was a respectable suburb (Barnes 1967: 62). In 1898 a Wesleyan minister, noting that when he began work in London in 1855 "shipowners, manufacturers and merchants" had already left their chapels in St George's-in-the-East and that later the shopkeepers followed them, believed Methodism had been injured more by these movements than by even the chronic schisms which beset the Methodist church in the first half of the century (quoted in Inglis 1963: 63, cf 92-3); and other evidence (Inglis 1963: 62-4) indicates this movement was confined neither to London or to any one religious group. In 1740, when Bethnal Green was separated from Stepney to become a separate parish with its own church, one of the reasons given was that there were 15,000 people living in 1,500 houses and the lack of a church caused "a Dissoluteness of Morals and Disregard of Religion, too apparent in the younger and meaner sort, so much so that people of the Better Sort had removed from their Habitations to the Great Impovrishment thereof" (quoted in Barnes 1967: 25).

However, this migration in East London appears to have been especially a phenomenon of the second half of the C19, on the evidence of a Congregational minister who remembered when earlier in the century the rich had lived in the same neighbourhoods as the poor and had exerted an influence in these areas (quoted in Inglis 1963: 63; cf Methodist examples *op. cit.* 63-4, 11 n.1). Olsen, noting that in the C18 "one could speak of fashionable or unfashionable streets, but not fashionable or unfashionable neighborhoods" and that even in new districts in the C18 the wealthy would occupy "the squares and the principal streets, the middle classes the adjacent smaller streets, and the poor the back courts and mews" suggests the development of the omnibus after 1830 was a considerable factor in allowing areas to be planned without stables and mewses (Olsen 1974: 267-8). In Edinburgh the rich and poor had lived in similar juxtapositon until the former began moving to the New Town and George Sq from the 1760s onwards (Youngson 1966: chapt VIII p.236 and *passim*). Latimer (1887: 3), talking of Bristol, makes the interesting suggestion that it was the prevalence of crime which delayed the complete split between the upper and lower classes until the later C19: at the beginning of the C19 he notes most merchants lived near their warehouses just as the trader lived above his store, in order to be near their premises, and this resulted in rich and poor living in the same streets with the worst effects of class separation avoided. Certainly, when the first H.O. Wills shortly after his marriage in 1791 went into a partnership with Peter Lilly the business moved to the later's works at 111-12 Redcliff St and the Willses lived there until 1808 when they moved to Redcliff Hill immediately adjacent, and it was not until 1815 that the family moved to then-fashionable Portland Square (Alford 1973: 16, 32, 46). Pipemaker William Nicholas was noted in Sketchley's *Bristol Directory*... for 1775 as being at 29 Lewin's Mead, with his "warehouse" at number 17: at this time Lewin's Mead was a respectable area (6: VI), but the principle of having one's business near one's domicile was apparently still socially acceptable at this time and probably so for security reasons. A similar Bristol example is that of Martha and William Okely who successively worked at Under the Bank (now the west side of Colston Ave) 1806-21 and were living on Host St running immediately behind Under the Bank certainly for the period 1812-20. In the City of London a firm of linen factors occupied from 1716 a large house in which the ground floor was warehouses, the next floor offices, and the top the living quarters of the owner and his family; and the owners continued to stay there until the 1830s (Mitchell and Leys 1958: 285, 1963 ed).

On a basis of erecting one Anglican church for every 4,750 souls out of a population of 342,000 in and around London and Westminster who were unprovided with a church it was estimated in 1711 that 72 churches would be required, a number reduced to 50 when it was estimated that 101,500 of the people were Huguenots or nonconformists though increased in 1715 to 54. Five of the 50 churches were to be in Stepney, two in Whitechapel, and one in Shadwell; one of the extra four was to be in Wapping. (Only 10 of the 54 were built - Christ Church, Spitalfields; St Anne's, Limehouse; and St George's-in-the-East, Cannon Street Road, are three - though six other already-existing churches or chapels were rebuilt, repaired, or otherwise altered (Trevelyan 1942: 332, 1946 ed; Bezodis et al. 1957: 4, 148; Barnes 1967: 18-22).)

Decline of local industries added to East London problems. The Huguenots who had arrived from France in the 1680s and set up as silk-weavers and -merchants in Spitalfields - where there had been silk-weavers since 1532 (Lonsdale 1962: 92) - had seen their greatest prosperity in the first half of the C18 (cf E.P. Thompson 1963: 157, 1968 ed), when the merchants' houses in Fournier St, for example, had been built. The area had had poverty and industrial unrest from before the 1680s, and its silk industry suffered from trade fluctuations to an extreme degree (George 1925: 178-96, 1966 ed) - those who prospered tended to leave; those who did not, stayed (Bezodis et al. 1957: general introduction, passim). The dislocation of trade caused by the American Revolution hit the silk trade - in 1777 Wesley noted extreme poverty in Bethnal Green (which had been largely built by the silk-weavers) - and because of the importance of the industry the government gave it protection from foreign silks. At this time whole streets in Bethnal Green and Mile End New Town - the latter an area with a more English population of weavers - were given over to silk-weaving, but standards were falling and middlemen were coming between weavers - traditionally independent - and buyers and the former were forced into poorer conditions. By 1780 the separate identity of the French community was rapidly disappearing, and by 1840, while Bethnal Green still had nearly 8,000 looms, Spitalfields and Mile End New Town had under 1,400 between them (Bezodis et al. 1957: 8; cf Leech 1964: 58-9 and Schwartz 1973: 96). Finally, a commercial treaty with France in 1860 abolished the protections noted above, signalling the end of the small craftsman. Hand-loom weavers survived in ever-decreasing numbers until 1939 - the story that Pius IX, needing a seamless silk robe to symbolize his papal infallibility, had to have it woven by a Huguenot in Spitalfields, is well known; and one of the last weavers wove the cloth for Edward VII's coronation robe - and the last Huguenot silk firm did not close until 1955 (Young and Willmott 1957: 90, 1962 ed); but the industry in East London had died, and its craftsmen ended their lives in poverty, or went in the spread farther east, or to Lancashire, or to the United States. The firm of Warner and Sons, one of the two factories which survived, moved to Braintree in Essex with six families of Bethnal Green weavers in 1895; they made the coronation robes for George V and the present queen (Gibson 1958: 5-6). By Booth's time, a small area of western Bethnal Green behind the prosperous facade of Shoreditch High Street known as the Nichol (ca.1890 illus. in Keating 1971: pl 10) - fictionalized as the Jago in Morrison's A Child of the Jago (1896) - had the largest concentration of Booth's lowest classes (including a considerable amount of his lowest class) in all London, and was a notorious centre for gang warfare, the Old Nichol Gang being famous (cf T.H. Smith 1959). Spitalfields also had a concentration of the lowest classes (Booth (ed) 1892-97: map 2).

In 1842 an estimate of the average age at death in different social classes in various centres gave that for the labouring class in Bethnal Green as 16 years. This was well under half the average age for the same class in rural Rutlandshire, which was 38 years; one year lower than the average for the labouring class in Manchester; and only one year above the lowest average of all - that for the same class in Liverpool. Figures for the tradesmen and gentry class are somewhat better than those in Manchester and Liverpool - the average age on death of a tradesman in Bethnal Green was 26 as opposed to 20 and 22 for those in Manchester and Liverpool respectively, while the average age at death for a gentleman in Bethnal Green was 45 compared to 35 in Liverpool and 38 in Manchester. In Rutlandshire the average age at death for a tradesman was 41, for a gentleman 52 (E.P. Thompson 1963: 365, 1968 ed). (This gross disparity continued throughout the C19 - in 1893 the Registrar General calculated that a Manchester-born man living in Manchester had a life-expectancy at birth of 27.78 years as compared to 43.66 years for the country as a whole and 51.48 years for the healthiest areas of the country, which were mostly rural (Lampard 1973: 20).)

An idea of the rapid growth of population in the area last century and the almost unbelievable overcrowding in this period can be obtained from studying the census figures for last century, and before that various contemporary references, and comparing them with the figures for the same area today. As noted above, Bethnal Green was said to have a population of 15,000 in 1,500 houses in 1740, and alarm was already being expressed then about the better classes leaving the area, but in the mid-C18 Bethnal Green parish could also be described as having "the fact of a country affording everything to render it pleasant, fields, pastorage [sic], grounds for cattle, and formerly woods and marches [sic]"; and in 1800 over half the parish was still farmland (quoted in Townsend 1957: 21-2, 1963 ed). Between 1801 and 1841 the population of the parish of St Matthew in Bethnal Green increased three-and-a-third times - 22,000 to 74,000. In the registration district of Stepney during the same period the population increased two-and-a-half times - from 35,000 to 91,000 - as the large remaining areas of rural Stepney were rapidly developed (Imray 1966; cf Truman 1963: passim). In the parish of All Saints, Poplar, the population increased fivefold - 4,000 to 20,000 - during this period.

Unfortunately, in the second half of the century there were boundary changes in the census districts, but in Bethnal Green, where the area remained virtually the same for censuses from 1801 to 1951, the 1841 figure - 74,000 - had jumped to 127,000 by 1881. In 1901, after a generation of growing public consciousness of slum conditions, the figure was still 108,000 (Townsend 1957: 22, 1963 ed), whereas by 1951 it was only 58,000 and by 1964 (Willmott 1966: 17, 1969 ed) only 46,000 (cf graph of Tower Hamlets population 1801-1971 in Lee 1972: 26 fig 6). In Poplar, the Registration District (as opposed to All Saints, which was a subdistrict) was rather less in area in 1881 from what had been in 1841 but the population had multiplied five times - from 31,000 to 157,000 - and for almost the same acreage in 1951 the population was down to 74,000. The following table (taken from information supplied by General Register Office, Somerset House, London) gives the detailed figures:

		Acreage	Population
Stepney registration district	1801	1,257	34,909
Stepney registration district	1841	1,257	90,687
Parish of St Matthew, Bethnal Green	1801	760	22,310
Parish of St Matthew, Bethnal Green	1841	760	74,088
Civil Parish of Bethnal Green	1881	755	126,961
Metropolitan Borough of Bethnal Green	1951	760	58,353
Registration District of Poplar	1801	2,918	8,278
Registration District of Poplar	1841	2,918	31,122
Registration District of Popular	1881	2,335	156,510
Metropolitan Borough of Poplar	1951	2,346	73,579

A more detailed breakdown of two East London Registration Districts, those of Whitechapel and St George's-in-the-East, suggest that their increases had taken place by the 1850s and that in fact after that date the population totals fell slightly (Leech 1967: 8-9, 17 table B). In Whitechapel the population, after rising from 57,000 to 80,000 between 1801 and 1851, had fallen to 71,000 by 1881; while in St George's-in-the-East the population, after more than doubling between 1801 and 1851 - 21,000 to 49,000 - reached a plateau in the 1850s and had fallen slowly from 49,000 to 47,000 by 1881. In fact, the continuing inflow of newcomers in the second half of the century - first Irish, then Jews - was not quite balancing a continuous outflow of East Londoners to points farther east - the 1880s and 1890s in particular saw the great build-up towards the river Lea. This agrees with Sinclair's observation and those noted by Inglis and quoted earlier regarding the movement of the middle-class businessmen to less squalid surroundings from the middle of the century onwards.

However, what was increasing throughout this period and causing perhaps the greatest squalor was the number of people per house. Between 1841, when the first figures are available, and 1881 the figure for Whitechapel rose steadily from 8.12 to 9.48, and for St George's-in-the-East from 6.91 to 8.16. In the Spitalfields subdistrict of Whitechapel the figure was 11.28 in 1881, and in the St John's subdistrict of St George's-in-the-East 10.28 in the same year (Leech loc. cit.). At 53 Old Nichol St in Morrison's Jago 90 people lived in 10 rooms; in 1889 the death rate in the Nichol was 40 per 1,000, nearly double the rate for Bethnal Green as a whole and four times that for the rest of London (T.H. Smith 1959: 41). As noted earlier, the Nichol had the highest concentration of Booth's lowest classes in all London, and Morrison was probably not exaggerating when he wrote

> What was too vile for Kate Street, Seven Dials, and Ratcliff Highway in its worst day, what was too useless, incapable and corrupt - all that teemed in the Old Jago (1896: 2).

In 1895 the London County Council was just starting slum clearance in the Nichol (the start is alluded to in A Child of the Jago) with its Boundary Street Improvement Scheme, which covered an area slightly larger than

Morrison's Jago (Boundary St - Morrison's Edge Lane - the western edge of the Jago, runs north-south roughly parallel to Shoreditch High St and immediately east of it), and statistics collected at that time for the area are relatively more favourable than they would have been for the Nichol proper. As it was, the Boundary St area comprised 20 streets, the average population per room being ca.2-1/4 and 107 rooms having 5 or more inhabitants each. The widest street or court was 28 ft across and in very many cases there was a great difference between street level and the level of the ground floor of the houses, some of the latter being 18 ins below the former. A large number of the houses had no backyards. Of the 730 houses, 652 were occupied "wholly or partly, by persons of the labouring classes", and of the remainder 12 were public houses or beer shops, 21 were shops and factories, 2 were lodging-houses with a total of 153 beds, and 43 were empty. The population exclusive of those in the lodging-houses was 5,566 - 3,370 adults and 2,196 children - occupying 2,545 rooms (quoted in Keating 1969: 25-26).

The inevitable result of this sort of overcrowding was the rabbit-warren of alleys, lanes, and courts between streets and in blocks leading to hovels often built in what had originally been gardens (cf Bezodis et al. 1957: 5; T.H. Smith loc. cit.) entirely disregarding what planning laws there were (cf Steffel 1970); and the subdividing and mass-overcrowding of old and originally respectable properties. Beames, writing of the London rookeries in the middle of the C19, while noting that much slum property was shoddily built from the first, also points out that

> A large class of the genus Rookery, are very ancient houses, deserted by those to whose ancestors they once belonged....In the dingiest streets of the Metropolis are found houses, the rooms of which are lofty, the walls panelled, the ceilings beautifully ornamented, (although the gilding which encrusted the ornaments is worn off,) the chimney-pieces models for the sculptor....The names of the courts remind you of decayed glory, - Villers, Dorset, Buckingham, Norfolk, telling of the stately edifices which once stood where you now breathe the impure atmosphere of a thickly-populated court. A street, now remarkable only for its narrowness and dirt is called Garden, because there was a garden there;....(Beames 1850: 16-17, 1852 ed).

Thus appeared the phenomenon of facades of higher-class houses on the major streets juxtaposed with the slums of the very lowest classes immediately beyond them (cf Dyos 1961: 109-13).

The most notorious area of East London in the earlier C19, or at any rate that most known to the curious of the time, was Ratcliff Highway. This street, where Stow had noted houses replacing the elms along it shortly before he was writing in 1598 (see p.366 above),[13] was renamed St George's St in the late C19, but part of its old name was restored in 1937 and as The Highway it was extended east, incorporating streets formerly under other names, through Shadwell and as far as the Regent's Canal Dock. Ratcliff Highway proper was the western section, running from East Smithfield to modern Garnet St (until 1939 New Gravel Lane). Now a street where the observer "is likely to find himself alone, flanked by derelict land and a low brick wall", it was 100 years ago full of

> crowded dancing-saloons and rifle galleries, photographers' booths and boarding-houses...a great night-time pleasure-strip, drawing sailors of many nations - red-shirted Americans, "chewing indefatigably", Chinamen and Lascars, "smoking Trichinopoly cheroots", "shivering" Italians, "piratical-looking" Greeks (Samuel 1973: 123).

Sinclair (1950: 107-8) talks of the public houses "which grew like barnacles in the Ratcliffe Highway" for much of the C19 until migration, social welfare work, and slum clearance began to reduce customers and the more prosperous Commercial Rd became the street of the pubs. In 1811 Ratcliff Highway became celebrated as the scene of a Regency Jack the Ripper-style series of murders (Critchley and James 1971) - the alleged murderer, who apparently comitted suicide while under arrest, was buried, as was the custom with suicides even this late, with a stake through his heart at the cross-roads of what are now Cannon Street Road and Cable St - and from the 1820s until well into the 1860s it was the area where young bucks went, latterly accompanied by a local detective and professional bodyguards, to indulge in the vicarious pleasures of observing sailors of all colours and nationalities, prostitutes, squalor, fights, and drunkenness (Keating 1971: 120-1, 277 n.62 and 1973: 587-9).

Even by this time, however, Ratcliff Highway was not as bad as it had been the previous century. An observer in 1824 noted that great though the mass of poverty and misery was in East London, there had been, "except in the very worst of these places and among the most wretched of the wretched...considerable improvement", while in the "leading streets" - in which list was included Ratcliff Highway - "the improvements [have been] in all respects great". The major improvements, it was said, had resulted from the building of London Docks (in 1805), for which a large number of miserable houses had been pulled down and streets widened; and the replacement of most of the old wooden houses by brick structures "commencing about forty years ago" [i.e. ca. 1784]. The great conflagration of 1794, caused by a kettle of pitch boiling over and setting fire to a barge of saltpetre which blew up and ignited the saltpetre warehouse of the East India Company, had burnt down some 600 houses in the area, including much of Ratcliff Highway; and this too had allowed rebuilding in brick and street-widening (George 1925: 345-6 n.125, 1966 ed; cf Critchley and James 1971: 10). Even so, in the middle of the last century, Beames, describing the Ratcliff Highway area (1850: 91, 1852 ed) was able to say that "Among those districts which bear away the palm of vice, misery, and filth, there is perhaps none more famous than that part of London which lies between the Tower and Isle of Dogs", and went on to describe that the part of "this Cimmerian region...bounded on the South by the Thames, on the West by the Minories, on the North by the Commercial Road, [and] on the East by the basin of the Regent's Canal". When one reads the contemporary evidence that much of East London and its population were noticeably better off in the early C19 than in the preceding century (George loc. cit.) one wonders just how bad conditions must have been in the C18.

Dock speculation returned later in the C19 as larger docks were built farther downstream in an attempt to catch more trade, but the shipbuilding industry itself was declining in the face of a more competitive industry in Glasgow and northern England. East London shipyards in the second half of the C19 were largely stagnating - at one time 3,000 skilled mechanics were employed in workhouses breaking stones (quoted in Sinclair 1950: 256-7). (Except where otherwise noted this section has been based largely on Cunningham 1897: chaps IV-VI; VCH Middx, II (1911); Spate 1936; Sinclair 1950 - occasionally inaccurate but extremely readable; Darlington and Howgego 1964; Pearl 1961: chapt 1; and Howgego 1967).

Pipemaking in London has been studied by D.R. Atkinson and A.H. Oswald (Atkinson and Oswald 1969). Makers are recorded in East London during the C18 (Oswald 1960a: *passim*; Atkinson and Oswald 1969: *passim*) and this, and some work by the writer on C19 London pipemakers with specific reference to the Ford family who exported pipes through the Hudson's Bay Company to North America (I. Walker 1971d: 23, 24 pl 2; for additional examples see Hoffman and Ross 1972a: fig 14b-d; 1973a: fig 7i-l; 1973b: fig 13a-f; 1974a: fig 8e-f), and also probably to Ghana (Calvocoressi MS), Ascension Island (Lefrancq *in litt.* 9 March 1972), and Australia (Allen and Macknight *in litt.* 29 March 1968); and to the Crop family or families of the same period, suggests that most of the pipemakers of this period worked in East London and in Southwark and Rotherhithe and the dock area immediately across the river from East London (cf Atkinson 1962: 187 fig 3; cf E.P. Thompson 1963: 869 n.3, 1968 ed; cf Atkinson and Oswald 1969: 216-25; cf Oswald 1970b: 229).

The Ford family appears to have been among the larger and more prosperous London pipemaking firms last century, having at one time three factories, two in Stepney and one in Pentonville, and a contract to supply the Hudson's Bay Company with pipes; and as the writer made a brief examination of the areas in which they worked (cf I. Walker 1969) and subsequently came in contact with a descendant of the family, it is intended to discuss these firms here as related to the economic background of the area to see what, if any, features may be regarded as typical of the industry at this time. In only one case does an actual premises appear to have survived (as a butcher's shop in what is now Durham Row), but in several cases dwellings typical of the area still exist either on the opposite side of the road or close by on the same side, so that some idea of the area as it was last century may be had.

One branch of the Ford business, successively known as John Ford, Jesse and Thomas Ford, and Thomas Ford (and occasionally as Ford and Company) of Stepney, is first recorded in the London trade directories at White Horse St (changed in 1938 to White Horse Rd) in 1823, and is last recorded - in the same premises - in 1909. During this period the family at one time also had a factory in the Mile End Rd, and John Ford also set up a business in North St (now part of Northdown St), Pentonville, which was eventually taken over by a son-in-law, Ebenezer Church sr. According to a trade-card in the possession of a great-granddaughter of John Ford, however (copy in possession of this writer), the business was established in 1810, and though it is not sated that this was in White Horse St, family tradition has always said this was so (Miss E.J. Church in litt. 30 September 1973). The John Ford recorded in 1821 as an Assistant of the London pipemakers' guild (Robinson and Spence 1937: 203) - a position which at least in the C17 was held for life - was probably this John Ford, in view of his apparently prosperous business, although the directories do note another John Ford (assuming this is not a third factory of the same John Ford) at New St, St George's-in-the-East, 1830-33 (see below). Among the papers in the possession of Miss Church is a remembrance card (copy in this writer's files) for a Jesse Ford who died 6 July 1868 aged 58, while a book in Miss Church's possession has an inscription noting a Thomas Ford of Stepney dying 28 December 1874 aged 62: Miss Church does not know to whom these refer, but almost certainly they are the Jesse and Thomas Ford noted above as John Ford's successors at White Horse St. One would have assumed them to have been sons of John Ford, but Miss Church (in litt. 1 January 1975) notes that in a paper written by a member of the Church family it is stated that Sarah Ford (Ebenezer Church sr's wife) was the only child of John Ford to survive infancy. As Jesse must have been born in 1809 or 1810 and Thomas in 1811 or 1812 they could have been brothers of John Ford (who died 6 July 1872), but if so the family's traditional date for the founding of the business, 1810, may have to relate to the generation before John unless he was born before ca.1790. (There is some confusion in the early directory entries as to which house Ford occupied - numbers 26 and 36 are variously listed, but after 1832 until the street is renumbered the number is given as 36 and it is likely that 26 is a misprint; a book belonging to Miss Church's father has written on its inside cover the name John Ford and the address 36 White Horse St, Stepney (Miss E.J. Church in litt. 1 January 1975). From 1867, following a renumbering of White Horse St, the premises became number 49.) The 1813 (third) edition of Richard Horwood's plan, which gives the street number of many houses, identifies this property; the site is shown occupied on John Roque's plan completed in 1745, on Gascoyne's plan of Stepney parish in 1703, on Morden and Lea's survey of London ca.1690, and on a survey of lands held in East London by the Mercers' Company in 1615 (reproduced in simplified form in Imray 1963: 102-3; I am grateful to the Mercers' Company for sending me a copy of the original);[14] inhabitants of White Horse St are referred to in the early C17 (Hill and Frere (eds) 1891: passim). Clearly what is now the lower half of White Horse Rd (as late as 1813 the northern half was largely unhoused) existed long before the C19 build-up of the area: geographically it was part of Ratcliff hamlet and as it was the road from the north to the the river it probably dates from medieval times. The buildings in FIG 133, directly opposite the site of Ford's premises, are likely to date to ca.1820 (information from A.F. Kelsall, Greater London Council Department of Architecture and Civic Design, to whom I am much indebted for a discussion of the dating of the various buildings discussed here - cf Imray 1966: 4 n.1 where it is noted that White Horse St was redeveloped between 1820 and 1850.) It is extremely likely that Ford's property looked identical, particularly as it lay between two public buildings of later construction and is thus unlikely to have been part of a major subsequent rebuilding such as that almost opposite (FIG 134) and datable to ca.1855. Unfortunately its site was never owned by the Mercers' Company, so that details of the property and any rebuildings are not included in the Mercers' Company's detailed material relating to this area.

In 1841 the Fords took over the premises in Wentworth Place - after 1863 part of Mile End Rd - of another pipemaker, Thomas Balme (FIGS 135-136) suggesting business was expanding, and they continued to hold both this and their White Horse St premises until 1905 (with an apparent break from 1876 to 1879, when there seems to have been considerable reorganization within the firm). The trade directory entries list the firm as an exporter from 1856, with the exception of the years 1878 and 1879, until its closure in 1909; but in fact the Hudson's Bay Company records indicate the firm was their pipe-supplier from 1831 until at least 1870 (Krause 1969-70; subsequent Hudson's Bay Company records have not yet been studied). Balme had been in these premises certainly since 1826 and probably since at least 1805, so that this property, like the Fords' other factory, remained in use for pipemaking for about 100 years. Examination of Gascoygne's and Rocque's plans (in which latter it is called Camel Row) suggest this part was built during the first half of the C18; de la Feuille's plan of 1680 (Castle and Fielding 1968: pl 1) has a tendency to straighten road lines, but does suggest that the Wentworth Place area was undeveloped though laid out in lots, and that the area immediately east was already developed. According to Kelsall the existing houses in the area date from the C18, some immediately to the east of Wentworth Place dating to ca.1725. Again, the evidence is fairly clear that Wentworth Place was far from a slum, although the tide of C19 expansion was soon to spread round and past it.

When Booth was making his detailed survey of London in the later 1880s he listed seven classes of people:

1. Lowest Class. Vicious, semi-criminal.
2. Very Poor, casual. Chronic want.
3. Poor. 18s to 21s a week for a moderate family.
4. Mixed. Some comfortable, others poor.
5. Fairly comfortable. Good ordinary earnings.
6. Middle Class. Well-to-do.
7. Upper-middle and Upper classes. Wealthy.

When one considers that Booth was able to have two classes below "Poor" (and "Poor" was defined as those living in poverty) the depth of squalor in the lowest groups may be guessed. Large areas of East London belonged to the three lowest classes, and the dock areas were almost solidly of the two lowest classes in many places.

Not all of East London was slum, however. To speak of the East End as being poor and the West End as rich is to oversimplify the situation considerably. A characteristic of East London, which is noticeable even today - though it is not unique to East London nor confined to the C19 (Dyos 1954: 76 and 1961: 36) - is the extremes of poverty and affluence sometimes literally touching each other. Considerable areas fell into Booth's fifth and sixth classes (though none in his seventh). Whitechapel Rd-Mile End Rd and Commercial Rd, for example, and even Commercial St in Spitalfields, were of classes 5 and 6, but they were a respectable facade for slums of narrow streets and alleys. Wentworth Place (69-103 Mile End Rd by Booth's time though his maps still use the former name) is of class 6, which indicates that the Ford premises there were considered prosperous even at the end of the century, when the clay pipe industry was dying. The immediately adjoining cul-de-sac of Eagle Place (changed in 1938 to Eaglet Place, demolished in April 1968) was of class one. The same differences, albeit a little less marked, are indicated for these two places in 1929, when a survey similar to Booth's was made (H.L.L. Smith (ed) 1930-5: map 1). White Horse St, and some of the immediately-surrounding streets, were in Booth's class 5, but the area to the north and east of St Dunstan's, the parish church, was predominantly of the three lowest classes, a feature still noticeable in the 1929 survey. This suggests - as is discussed in more detail later - that at least some of the earlier parts of Stepney parish remained to some extent an island in the sea of later C19 slums and semi-slums.

The indications, therefore, seem to be that the Ford businesses were in relatively respectable areas. In the late 1870s the company appears to have gone through a period of reorganization, perhaps when the second generation died; and in 1879, and for that year only, the Ford who took over the Mile End Rd and White Horse St properties the next year worked at 4 Church Row (now 5 Durham Row; the name-change took place the year of Ford's occupancy) immediately NE of the church and opening off White Horse St (FIGS 137-138). This property too is of Booth's class 5, and like Ford's Mile End Rd Property had been used previously for pipemaking - a James Strutt used it and number 2 during the period 1873-78 (Bloice in Atkinson and Oswald 1969: 224 says Strutton; correct name and confirmation of property number from J. Ashdown, in litt. 10 September 1970).

John Ford first appears at 28 North St (now part of Northdown St), Pentonville, in 1826 and is listed there until 1865. From 1857 to 1865 he is listed as an exporter. The business was continued by a son-in-law, Ebenezer Church, until his death at 56 in 1886, and after that by Ebenezer's widow, Sarah, until her death in 1893 at the age of 57. The directories do not record the Churches as exporters, but one of their address labels (in the possession of this writer) advertises "Pipes for Exportation"; however, no Church-marked pipes are known by this writer to have been found abroad so far (one mark known to have been used by the firm is the name CHURCH in plain capitals within a dotted rectangle (Atkinson 1962a: 187 fig 3 btm rt)). At least under the Churches the business was also known as the Pentonville Tobacco Pipe Works (same label) or the Pentonville Pipe Works (a business card in the writer's possession) or, as an 1879 price-list (also in the writer's possession) rather affectedly puts it, "Ye Pentonville Workes". From 1877 the business is listed at 27-28 North St, and from 1891 to 1894 at numbers 23-25 - Miss Church has an advertisement of a clearance by public auction to be held 7 July 1894 of the "stock, plant and utensils" from the factory (copy in writer's possession). A son of Ebenezer Church, also called Ebenezer, did continue to make pipes, however, and according to Miss Church's eldest sister (B 1901) their father John Church worked with his brother, the younger Ebenezer (Miss E.J. Church in litt. 3 February 1974): this Ebenezer Church is listed in the trade directories 1903-13 at 23 - after 1905, 23-1/2 - White Lion St, ca.1/2 mile east of North St. Miss Church's sister believes there were two kilns at the White Lion St premises; unfortunately the original building is no longer standing.[15]

The original premises at 23-25 North St also no longer exist, having been demolished ca.1934, but the surviving part of the street immediately adjacent (FIG 139) indicates a pretentiousness which suggests that it was originally designed to be eminently respectable. As the evidence of Horwood's 1799 and 1813 plans indicate that this street was being built only at the very end of the C18 and the first decades of the C19, it is clear that Ford was an early occupant, and it is perhaps surprising that a business such as pipemaking was carried out so early in the history of what appears to have been designed as a residential street. However, a George Benson is listed as a pipemaker in North St even earlier, from 1809 to 1811, though at what number is not recorded (it could possibly have been number 28, as a comparison between Horwood's 1799 and 1807 plans suggests this property was built between these two dates).[16] Certainly by Booth's time the street was of a lower class than those surrounding it, for it is placed in class 4 while its neighbours are of higher classes. Moreover, within the various blocks of these respectable houses were mewses and alleys populated by people of the lowest classes, yet another feature which had not fundamentally changed by the 1929 survey. (In Glasgow the pipemaking firm of A. Coghill is listed in St Andrew's Sq in 1826, the first year it appears, but thereafter for virtually all of its 78-year existence is at Ropewalk Lane (Appendix VII): St Andrew's Sq, part of the Georgian development of Glasgow, was laid out in the 1780s (Youngson 1966: 50) and one suspects that Coghill perhaps lived here or owned the property but was made to take his business to the older and poorer area of the city on the grounds that industry could not be permitted in a residential area.)

Other Fords worked at a premises in what is now the southernmost part of Cannon Street Road between 1836 and 1853, and the premises were thereafter used by other pipemakers until 1892. This part of Cannon Street Road (until 1859 called Cannon Street) was in existence as part of Wapping hamlet before 1700 (Morden and Lea's and Gascoyne's plans) - two houses from ca.1700 survived into this century (RCHM(E) London V (1930): 100, pl 15) - and it is interesting that Booth classifies it in his classes 5 (the west side, now demolished, where the Ford premises were) and 6 (the east side, still surviving with fragments of everything from ca.1780 to ca.1880, FIG 140). This is the only part of the immediate area to be rated so high, and suggests that like White Horse St, Cannon Street, predating the C19 building spread, clung to an earlier status. Admittedly, such an argument cannot be applied to the rest of older Wapping, for Booth put almost all the area south of what is now called Cable St into his four lowest classes, but Morden and Lea, Gascoyne, and Roque all indicate that Cannon Street was on the northern edge of Wapping. The area between Cable St and Whitechapel Rd was entirely open east of Back Church Lane (running north from Wellclose Sq) until White Horse St was reached. Even as late as 1813 the eastern spread had only moved from Back Church Lane to a little east of Cannon Street Road-New Rd, although Commercial Rd (largely on the line of the earlier White Horse Lane - not the present White Horse Lane) had been built between 1803 and 1810 to serve the India Docks beyond Stepney and Ratcliff. Smith's 1929 survey indicates that the social position of lower Cannon Street Road relative to its surroundings had not fundamentally changed since Booth's time.

The prolonged use of a premises for pipemaking by several pipemakers noted in the Wentworth Place-Mile End Rd and Cannon Street Road properties also occurs with a premises in what is now Cable St between Swedenborg St and Betts St, a site being redeveloped in 1968. A John Ford is recorded - the address then being 30 New Rd, St George's-in-the-East - from 1830 to 1833, and two other pipemakers in turn occupy the property from 1842 to 1863 (cf Atkinson 1962: 187 fig 3 second-btm line). As the industry declined there must have been a number of pipemakers desperate enough for work to be willing to try to make pay a business which another maker had given up as a bad job.

Although Stepney parish had been affected by the expansion on its south along the Thames before 1600 and had slums by 1650, large areas remained unhoused until well after 1800, as Horwood's 1813 plan indicates. There is little built-up round the parish church by 1813 other than that there since before 1690. The upper part of White Horse St, where it approaches the church, was still largely unhoused and totally in open country in 1813. It was only in the succeeding years that the rapid tide of humanity spread through and beyond the area: by 1847 (Cruchley's *New Plan of London and its Environs*, edition of that year) the area between Whitechapel Rd-Mile End Rd and Cable St was built solidly past White Horse St as far as the Regent's Canal, a mile's progress in 34 years (some details of this development are given in Imray 1966 and Truman 1963; cf Castle and Fielding 1968: pl 2 - Rocque's 1769 plan - and pl 3 - Davis's 1851 plan).

Even the part of White Horse St south of Commercial Rd (now the extreme east end of Cable St) was in Booth's class 5, as were some streets in the immediate vicinity; in the area where White Horse St and Commercial Rd crossed there were people of class 6. It seems extremely likely that the "fairly comfortable" people, with "good ordinary earnings" were the respectable, so to speak, inhabitants of the older area on the northern outskirts of Ratcliff who stubbornly held on, and apparently prospered relatively well (cf Sinclair 1950: 314). The lower part of Cannon Street Road may also fall into this type of category. The clarity with which parts of these two areas are defined - particularly the east side of Cannon Street Road and the part of White Horse St south of Commercial Rd - certainly suggests that these areas had a strong tradition behind their difference from neighbouring areas. (It should not be thought, of course, that older areas always remain respectable when lower-class exansion swallows up a formerly separate entity, but often the older generation live out the remainder of their lives in an approximation of their earlier ways while the younger move to more respectable suburbs farther out. Booth noted that recent immigrants to London were much more willing to move to the characterless suburbs than were the old-time residents of the central districts (noted in Wohl 1971: 44 n.13). If ties of family or social life are strong - and in East London they are (Young and Willmott 1957: *passim*, esp. chapts 3 and 7, 1962 ed; Townsend 1957: *passim*, esp. chapts 3, 4, 15, 1963 ed) - this conservatism may last for several generations.)

Another London pipemaking family which achieved considerable fame last century was that of Crop (cf Fresco-Corbu 1964: 1289, fig 3; 1967: 1474 and 1477). (Though the name more frequently appears spelt Cropp (e.g. Bloice in Atkinson and Oswald 1969: 218), all pipes with this name seen by this writer have it spelt Crop. No Crops appear in the 1969 London telephone directory, and only six Cropps. Of the five of these latter who replied to letters sent, three were related and none knew of any connection with the pipemaking firm.) According to Harley (1963: 19), who is not a reliable source, the family made pipes "from about 1850 to 1910", and on his retirement the last Crop destroyed all the family moulds and took the secret of his pipe-colouring with him to his grave. This pipe-colouring technique and some of Crop's products are discussed in 2: VII, but it can be repeated here that the more elaborately-modelled bowls of the firm were of superb quality. Crop pipes must have been widely sold - a plain example is known from Sydney, Australia (Miss A. Bickford in litt. 12 July 1969) - and it was probably this reputation which enabled the firm to leave the slums of Hoxton (cf Sinclair 1950: 334-6) and continue working until 1924 in the somewhat better district of Homerton in outer NE London. In this case, unlike that of the Fords, success appears to have brought a desire to move to a less squalid area.

The early history of the Crop family is confused by multiple directory entries all of Charles Crops. One is listed in Great James St (now Purcell St) from 1856 to 1869 and another, presumably a different one, from 1856 to 1864 in Turner Sq (now demolished, but sited immediately south of Great James St). Booth classifies this area as predominantly Class 4 and lower. For the single year 1865 a Charles Crop appears in Mortimer Rd, north of Hoxton and north of the Regent's Canal which so markedly enclosed the poverty of Hoxton and Bethnal Green; but if this was an attempt of the Turner Sq Crop (to judge by the dates) to move to better surroundings - Booth's classes 5 and 6 - it appears to have failed. (The relationships among these Crops are unknown; possibly, as with the separate Stepney and Pentonville John Ford entries noted above, some of these entries are separate entries for the same maker.) From 1870 to 1878 there is a gap in the directories, but in 1879 Charles Crop and Sons appear in Brooksbys Walk, Homerton, and continue there until 1924 (it is possible that the incomplete word HOMER- moulded on a bowl-fragment from the Hoyt-Barnun House site in Stamford, Connecticut (Poirier 1974: 13), originally read HOMERTON, in which case the pipe may have been a Crop product, though this writer knows of no Crop products which include a place-name in their mark). In the same year as the firm appears for the last time in the London trade directories, A. Dunhill (1924: 220) noted that the clay pipes still sold to some extent in "the little shops in poor neighbourhoods" generally bore the name Crop of London. Booth marked old Homerton as predominantly in his lower classes, but the area in general was of a better class than Hoxton.

The overall impression that arises from this admittedly extremely limited work is that the best firms managed to achieve some respectability and at the height of their business were at least moderately well off. The Stepney-Mile End Rd Fords, in relation to their surroundings, appear to have been quite well off indeed. However, there is every reason to suspect that the numerous other pipemakers in East London were anything but well off. Unfortunately it is not possible to say how many pipemakers listed were in effect one-man businesses: few can have been real companies, though the Stepney-Mile End Rd Fords and the Crops appear to have been in that category. Booth unfortunately does not include a pipemaker in his detailed examples of streets whose occupants represented his classes. The only occupation possibly socially near is a cigar-maker listed in a Class 4 street.

Two cigar-makers, a married couple, were listed among the 17 inhabitants of 29 Hanbury St near Brick Lane when Annie Chapman, one of Jack the Ripper's victims, were murdered in the backyard of that premises on 8 September 1888. The occupants of the premises are perhaps worth recording as representative of those of a relatively respectable rooming house for the area, in a street classified by Booth the previous year as Class 4. The property is described in the relevant volume of the LCC Survey of London as having been probably rebuilt for the first time ca.1740, the area having been built up by 1681-82. The house had been refronted in 1846 and was single-fronted, three storeys high, and two rooms deep, with a garret (Bezodis et al. 1957: 190, 192-3). In 1888 the front parlour was used as a cat's-meat shop, the woman who sold the cat's-meat at a farthing or a halfpenny a piece living in the room with her 18-year old son. The back parlour was used for prayer-meetings by the landlady. This woman and her 14-year old grandson lived in the front room on the second floor and a lawn-tennis bootmaker occupied the back room with his son, who was feeble-minded. On the third floor a carter, his wife, and their adopted daughter occupied the front room and the cigar-maker and his wife lived at the rear. In the garret a Spitalfields porter, his wife, and three children lived at the front and an old lady, kept out of charity, had the back room (noted in T. Cullen 1965: 71, 51, 1966 ed).[17]

As noted in 1: VII(e) when dealing with the development of cigarettes, the Russian and Polish Jews who settled in East London in the later C19 contributed greatly to the cigarette-making industry before mass-production of cigarettes by machine. This is another example of the East London tradition for small craftsmen businesses; in this case it probably contributed to the decline of pipemaking there. By a coincidence, the courtyard off Berner St (since 1963 Henriques St) on its west side north of Fairclough St where another of the Ripper's victims, Elizabeth Stride, was murdered on 30 September 1888 was occupied on one side by a row of cottages where tailors and cigarette-makers worked and on the other by an educational club used by Russian, Polish, and German Jews (T. Cullen op. cit. 104). Booth had classified Berner St where it was not commercial premises as Class 4; the particular courtyard where the cirgarette-makers worked was too small to be shown on his map but Batty's Gardens to the north is, and characteristically enough of such back alleys had a markedly lower class of population than the thoroughfares. In this case it was marked Class 2 and it is likely that the cigarette-makers and tailors living at the scene of the murder would have been of a similar class.

Clay pipemaking last century must have been in something of a cleft stick, engaged in a losing struggle against other forms of smoking and faced with the fact that there was only so much one could charge for pipes if one hoped to sell them. Indeed, the only point the makers could really emphasize was their cheapness, and it was the search for ever-cheaper labour which no doubt reinforced the concentration of pipemaking businesses in slum areas, whether in East London, eastern Montreal, Glasgow's Calton, or St

Jude's in Bristol. The fact that the Rainford clay-pipe industry flourished at a time when that in nearby Liverpool had declined must have been largely due to cheaper labour being available in the country districts than was available even in the poorest parts of Liverpool. Makers, paid piece-work (this appears to have been the usual practice), had to make a large number to earn a living, yet fewer pipes were being sold.

Yet paradoxically, East London was last century - indeed to a considerable degree still is - ideal in some respects for a business such as clay tobacco-pipe manufacture: the last London clay pipemaking business, Edward Back, was listed in Old Ford Rd, in outer East London, until 1944. East London is still an area of small independent businesses (cf Willmott 1966: 110, 1969 ed) - indeed very recently (Martin 1966: 186) the making of wooden tobacco-pipes was noted in Stepney. The sweated small craft industries of the clothing and footwear trades in East London last century have been examined (P.G. Hall 1960: passim; 1962) and the East London character of other craft-industries had also been noted (Young and Willmott 1957: 90-1, 1962 ed; Lonsdale: 1962). Lonsdale, talking of the Jews in the clothing trade who settled especially in Stepney in the second half of the C19, noted the "Jew's desire to be independent and his own master, which inevitably tends to perpetuate the organization of the industry on this small-scale basis". Workshops, she noted, were built in the backyards of their homes, and the master tailor had two or three employees - by this time the old domestic system of using the family in the business was less common (Lonsdale 1962: 93, 92; cf Leslie 1963: 77).

This small craft-industry tradition of East London goes back centuries before this, however: their concentration and that of the small independent businessman in the area is clearly an East London tradition, traceable to beginnings 500 years ago, as already noted, and continuing in the industries and street-markets of today; but the very structure of East London lends itself to (and of course is also caused by) this tradition (cf R.K. Lee 1972: 41). A small business can be more mobile than a large one, and in this may lie its life, for it can move from one short-term property to another when a larger firm may find itself unable to move (cf Sinclair 1950: 310; also Eversley 1972: 56). P.G. Hall (1960), discussing the locations of the clothing trades in London - one of which is in East London - notes that the critical factor is close contact with the metropolitan market: the luxury retail market of the West End is the origin of West End tailors - Regent and Bond Sts, for example - while the wholesale market of the City is the origin of the East End industry in an area where demand and supply for cheap labour last century was almost unlimited. Once established in an area, an industry tends to generate its own pool of available labour; hence not only the quartiers of the clothing trade in London, a trade already associated with the eastern edge of the city before 1600 (Ben Johnson quoted in P.G. Hall 1960: 167), but the areas in Shoreditch and Bethnal Green of the furniture-making trade (cf Oliver 1961), that of watch- and precision tool-making in Clerkenwell, that of gold-and silver-working in Hatton Garden, and those of the printing trade in the City and Finsbury. Such quartiers are not confined to London - there are similar areas in Birmingham for the jewellery and gun trades (Wise 1951; D.M. Smith 1964) and there are now-defunct silk-weaving quartiers still traceable in Coventry and Macclesfield (D.M. Smith 196[illegible] 106).

Granted that clay pipemaking is much less sophisticated than those trades, the cheap labour, the available working-class market, and the advantages of a traditional manufacturing area are as likely to apply to it as to any other trade. Further, pipemaking, like these other trades, involves the production of small items in small premises, and like them is essentially a home industry requiring a minimum of equipment. D.M. Smith describes the premises of one of the gunsmiths working in the Birmingham gun quartier in 1962 as follows:

> The main feature of the workshop is a long bench beneath the windows, which are augmented by a skylight in the roof, the only other source of illumination being adjustable electric lights above the bench. On the side of the bench is a vice, and within easy reach an enormous range of files and other small tools, many of which were made by Mr. Draper as he required them. The workshop also contains a chair and a desk from which the clerical side of this one-man business is run, and drawers and shelves for screws, components, and a variety of miscellaneous bits of metal. In such conditions have been produced guns which have spread the fame of Birmingham's craftsmen throughout the world (D.M. Smith 1964: 115, pl 28).

Describing another gunsmith's workshop in the same area, Smith notes (1964: 117):

> The simple inscription 'J. POPLE' above the door in letters barely 4 in. high was the sole indication of who occupied the premises. Such modest nameplates are characteristic of the very small concerns, and seem perfectly in keeping with the nature of a trade in which the individual's particular occupation and the skill with which he performed would be known simply be reputation.

A similar professional modesty characterized Pollock's factory when this writer finally located it (cf B. Rogers 1973: 26).

An account of the Birmingham jewellery and goldsmithing trades published in 1866 noted that

> All that is needed for a workman to start as a master is a peculiarly shaped bench and a leather apron, one or two pounds' worth of tools (including a blow-pipe), and for material a few sovereigns and some ounces of copper and glue. His shop may be the top room of his house, or a small building over the washhouse at a rent of 2s or 2s6d per week, and the indispensable gas jet, which the Gas Company will supply on credit (quoted in Wise 1951: 62).

About 200 years earlier the same sort of description was made of a blacksmith in the same industrial Midlands: the basic equipment comprised an anvil, stiddy, bellows, and an array of swages, jacks, planes, gouges, and clamps which demanded little outlay and, apart from the bellows, little maintenance. The value of the work "lay in the skill of the workmen who turned out large quantities of goods at great speed, and a high degree of standardization" (Rowlands 1968: 39). A description for a pipemaker would have been strikingly similar to these descriptions: in 1850 in Bristol, when the industry there appears to have just begun its final decline, an anonymous observer noted that "so soon...as a family can accumulate funds to enable them to set up an oven and purchase a mould and a little clay, it is not unusual for them to do so, and manufacture for themselves" (the Examiner 17 August 1850; see also 6: VIII).

One feature which has been noted elsewhere but which so far has not yet appeared in this admittedly preliminary survey of East London pipemakers is the association of Irish immigrants with pipemaking. Irish immigrants have been recorded in London from the early C17, and in the closing decades of the C18 and the early decades of the C19, bad harvests, political unrest, and Irish mercenaries released from the Napoleonic Wars added greatly to the total long before the potato famine drove even more to leave Ireland in the later 1840s and the 1850s. However, a preliminary survey of occupations listed for Irish in East London in the 1851 census, while listing labourers to silversmiths to teachers for men and prostitute (one gave her occupation thus) to field labourers to domestics for women, mentions no pipemakers (J.A. Jackson 1963: 105-19).

A surprising thing about East London pipemakers is that some of their premises did remain in use for so long, which might suggest that some businesses were healthier than might have been expected. It is more likely, however, that it indicates a number of pipemakers desperately trying to make a success of a dying business to earn a livlihood - as the industry was contracting it is likely that there were many out-of-work pipemakers trying to continue their trade and prepared to attempt to make a living from a business which had previously failed. An account in 1819 of nailmaking in Wolverhampton, noting the decline of the independent artisan, observed that

> The order of things...is completely inverted. Now, the last resource of the starving journeyman is to set up master; his employer cannot find him work, on which there is any possible profit, and is therefore obliged to discharge him; the poor wretch then sells his bed, and buys an anvil, procures a little iron, and having manufactured a few articles, hawks them about...for what he can get.... He might have previously received 10s a week as a servant; but now he is lucky if he gets 7s as a master manufacturer (New Monthly Magazine, 1 July 1819, quoted in E.P. Thompson 963: 287, 1968 ed).

That precisely this reason lay behind the appearance for a few years of new makers in the dying decades of the pipemaking industry, both in East London and for example Bristol (see 6: VI), seems certain. John Frederick Bryant jr of Bristol, talking of his business there during the early 1780s, also noted the profit he and his wife made from their business was not as great as what they would have earned as journeyworkers but that the hope of improved business kept them optimistic (Bryant 1787: xxv). A less successful example of an employee setting up in business for himself is recorded by Sturt of a Surrey wheelwright ca.1884: probably ignorant of the fact that carts were already being sold locally for less than cost price and that it was jobbing - the repairs - which enabled businesses to survive, he began building new carts for a pound or so less than the local price and had to close down within a year in the face of bankruptcy (Sturt 1923: 199-200, 1963 ed).

It may well be, however, that smaller manufacturers than the Fords did find temporary relief in small properties - and many of the East London lots are small - which would be cheaper, or in slum premises or obsolescent or condemned premises while larger firms would have had to search for capital and permission to demolish property and build a factory. From the evidence of the Montreal industry it certainly seems that pipemakers could move around frequently and still remain in business. Two or three men and a roomful of equipment are not difficult to set up over again; indeed the only major expense would appear to be the erection of the kiln, and the fact that until the C19 (and even into it and into the C20, as for example with Flanagan at Leicester) the industry could be run essentially as a home industry indicates the ease with which it could, if necessary, be accommodated in simple premises.

SECTION VII: CONCLUSION

The brief coverage of pipemaking in these centres have necessarily been uneven, based as they have been only on readily-available works or sources. However, a number of points, which can be grouped in three major sections, are worth noting and may be of value when considering the Bristol industry.

First, though the C19 saw the virtual death of the clay pipe industry, its decline took place at different times in different places; and it may also be suspected that though the basic reason for the decline was the same in each area - namely a switch to other methods of taking tobacco - there were local and also social differences in this change. For example, the apparent end of prosperity in the Liverpool industry in the 1830s certainly cannot have been due to a preference for brier pipes or cigarettes, for as noted in 1: VII(e) and (h) these did not appear until the 1850s: there is some evidence to suggest Liverpool's decline was due to a popularity of cigars. On the other hand, the general sudden decline of the industry in England in the period 1850-70 as indicated by Oswald from numbers of makers recorded is plausibly connected with the appearance of the brier pipe and to a lesser extent the cigarette.

If we can believe contemporary observers, cigars were all the rage ca.1830 but by the 1840s and 1850s the short clay was in vogue. However, it is stated in 1859 that cigars were accounting for over half the tobacco consumed in the larger centres in the country, which suggests that cigars were still more socially acceptable than pipes but that pipes were generally popular. By 1900 it is stated four-fifths of the tobacco consumed in the country was pipe-tobacco, which indicates that the pipe had entirely regained its traditional standing and that the cigarette was not nearly as common at that time as contemporary remarks might lead one to believe. Similar exaggeration is probably reflected in the references to cigars in the 1820s and 1830s and to the cutties in the following two decades, but it is clear that by 1900 pipe-smoking was again the normal method of taking tobacco in England, and had presumably been returning to popularity throughout the second half of the C19. The steady increase in the number of pipemakers recorded in Leicester from the beginning of the C19 to the 1850s also suggests this, and while undoubtedly the industrial growth of Leicester at this time must have stimulated the market, the rapid rise in the number of pipemakers recorded in Lincolnshire from 1815 to ca.1850 (P.K. Wells in litt. 17 April 1969) cannot be attributed to any concentrated industrial development in this rural area and must reflect the general population growth throughout the country at this time and the increasing desire of sections of this population to smoke pipes. Thus the clay pipe industry does not die because pipe-smoking went out; on the contrary it died as pipe-smoking was regaining its popularity and it did so because from the 1850s onwards a new and much more durable pipe - the brier pipe - was being introduced.

The brier was bought by the better-off and the fashionable - those who could afford the "expensive" price of 3s for a bowl in the late 1850s (Fairholt 1859: 198-9) and presumably the additional cost of a stem - which appreciably reduced both the market for, and the social status of, the clay pipe, the latter reinforcing the descending spiral. The market for clay pipes thus became one of those who could not or would not buy briers, and while Thomas Carlyle insisted on his Scottish-made long-stemmed clays and Conan Doyle records a clay pipe among those smoked by Sherlock Holmes,[18] an overwhelming majority of those who continued to use clay pipes must have belonged to the poorer classes. Catherine Eddowes, yet another of Jack the Ripper's victims, had two "short clay pipes" among her few worldly possessions when murdered on 30 September 1888 (quoted from The Times in Cullen 1965: 112, 1966 ed),[19] while Alice McKenzie, victim of a Ripper-style murder in East London in 1889 and another prostitute, was known as "Clay-pipe Alice" because of her habit of smoking a clay pipe in bed - when her body was found in Castle Alley (now the southern end of Old Castle St) off Whitechapel High St there was a clay pipe under it (Odell 1965: 98, 1966 rev ed and Farson 1972: 58, 1973 rev ed). The same year as the Ripper murders, 1888, Kipling's short story "The Madness of Private Ortheris" appeared in Plain Tales from the Hills, and the Cockney soldier Ortheris pours out his yearning for the slums of home:

> I'm sick for London again; sick for the sounds of 'er, and the sights of 'er, an' the stinks of 'er; orange-peel and hasphalte an' gas comin' in over Vaux'all Bridge. Sick for the rail goin' down to Box 'ill, with your gal on your knee an' a new clay pipe in your face (quoted in Keating 1971: 144)

which dramatically puts the clay pipe among the lowest classes, the English soldier of the time, as has been noted, being regarded as a social outcast "drawn from the unemployed or unemployable" and considered by the respectable working class as the lowest of the low (quoted in Keating 1971: 142). A correspondent in a recent issue of The Scots Magazine (vol 103 no 6 (n.s.) (September 1975) 659), recalling the days of the Airdrie and Coatbridge Tramways at an unspecified time but probably early this century, quoted a rhyme then current in which an ex-bricklayer's helper extolled his good fortune and social advancement in having obtained a job on the tramcars:

> Nae mair getting up at hauf-past six
> Climbin' up the ladder wi' a hodfu' o' bricks,
> Naie mair clay pipes, nothing but cigars
> Now I've got a job on the Coatbridge cars.

(Airdrie and Coatbridge are two industrial communities east of Glasgow; according to the same correspondent there was a clay pipe factory in Academy St in Coatbridge, but unfortunately he does not give the name.) Arthur Morrison, who wrote three famous books on working-class life in East London at the end of the C19 - Tales of Mean Streets (1894), A Child of the Jago (1896), and To London Town (1899)[20] - also noted a dichotomy in the lower classes between cigar and clay pipe: in A Child of the Jago the inhabitants of the Jago, the fictionalized Nichol in Bethnal Green and as noted earlier perhaps the worst slum area in London and famed for its gang warfare, smoke clay pipes (Morrison 1896: 92, 175-6) while the High Mob, a sort of modest Mafia of professional criminals who lived respectably, far from the Jago, but met the Jagos every Sunday at their local pub to conduct business, dressed in handsome gear, smoked cigars, and were regarded as a success to which all Jagos might hope to aspire (1896: 93). A superb photograph taken 2 September 1901 of the crew of HMS Indefatigable while she was coaling up at Halifax, Nova Scotia, shows a large proportion of the crew smoking pipes, with a scattering of cigarettes, and it is noticeable that whereas the pipes smoked by the officers and petty officers are briers those smoked by the men are overwhelmingly clays (Harper and Triggs (eds) 1967: pl 116).

By ca.1900 those who bought clay pipes in Leicester were miners and quarrymen, people belonging to the poorer working classes, extremely likely to have been conservative in taste and not the sort of people likely to change their smoking habits to conform to fashion even if they could afford briers. Sax Rohmer (Arthur S. Ward), the author of the Fu Manchu and similar stories, was presumably no profound observer of social classes, but in his The Quest of the Sacred Slipper, first published in 1913, he felt able to describe a group of men from a slum tenement in Waterloo Rd in Lambeth as all smoking clay pipes. Presumably, therefore, even as late as 1913 clay pipes were a typical way of smoking in the lowest classes. Arthur Morrison, who was a profound observer of social classes (Keating 1971: chapt 7), listed various stereotypes of East London in the Introduction - originally published separately in 1891 with some differences - to his Tales of Mean Streets (1894), one of which ran as follows:

> The East End is a place,...which is given over to the Unemployed. And the Unemployed is a race whose token is a clay pipe, and whose enemy is soap; now and again it migrates bodily to Hyde Park with banners, and furnishes adjacent police courts with disorderly drunks (Morrison 1894: 1-2).

In another story in the same book, a wife who had received a windfall of £100 decides to set up a drapery and haberdashery business and bask in the respectability of owning a shop, particularly a socially-respectable shop such as a drapery and haberdashery establishment, and at the end of the first day in the new business drags her husband in from the back yard where he has gone to smoke his pipe for the first time that day because she discovers his action could be observed from a neighbour's window, "the pipe being a clay" (1894: 115). In the early C20 the Poorhouse on the island of Mull supplied its inmates - of both sexes - with clay pipes and a weekly allowance of tobacco (Macnab 1972: 260).

There are hints that there tended to be an optimum number of makers at any one time in the various centres - for example, though a firm would disappear, its place (not necessarily its premises) would be filled by a new name, thus keeping the overall number of makers the same - but generally, when it came, the final fall was swift. It probably was so at Liverpool and certainly was so at Montreal and Edinburgh. In Lincolnshire there were two pronounced drops in the number of pipemakers recorded - one in the later 1850s, the other in the later 1860s. By 1870 the number still in business in Lincolnshire was one-third the number recorded in 1855 (P.K. Wells in litt. 17 April 1969). Only in Glasgow, where the industry was supported by a considerable export trade, was the decline slow, though there was a sharp fall there in the middle of this decline, during the period 1908-13.

In Scotland and Ireland the C19 appears to have seen both the rise and the decline of the clay pipe. In both countries the peak of the clay pipe industry as reflected in the number of makers recorded is in the 1870s and 1880s. There is evidence that the Irish exodus following the potato-famine in the 1840s gave a temporary boost to the Glasgow clay pipe industry and momentary resuccitation to the Liverpool and perhaps the Chester industries, all in the 1850s; it almost certainly brought about the foundation of the Montreal industry in the late 1840s.

The Chester industry, unlike the others, has already passed its zenith before the C19. Its height of prosperity appears to have been in the earlier C18; it appears to have maintained a reputation for superior-quality pipes until the end of the C18, and also to have made pipes specially for the West African slave trade. There is evidence to suggest that its industry fell to the mass-production of Liverpool, where the industry has a very rapid expansion from the 1760s onwards. This last point also emphasizes the individuality of regional industries, for during the second half of the C18 - indeed starting probably soon after the beginning of the century - smoking declined in favour of snuff certainly among the upper classes, and that this was a marked nation-wide trait is reflected both in the decline in the number of pipemakers recorded in England and in a decline in the volume of tobacco consumed.

Secondly, there appears to be a tendency for pipemakers to concentrate in certain areas - East London in general, more particularly in Glasgow's Calton, in Detroit, and above all in Montreal where virtually all the makers concentrate in an area about half a mile square. All these areas are poor and at least semi-slum in large parts; in some cases they were extremely bad slum areas. A similar ghetto tendency has been noted among C19 Boston pipemakers and may indeed date back to an earlier period, for a Pipemaker's Lane in this area, while first recorded in 1818, has no known association with C19 pipemakers and may therefore have received its name from C18 or even earlier activity in the area (P.K. Wells, paper given at the Spring Conference of the Society for Post-Medieval Archaeology at Lincoln, March 1969; P.K. Wells 1970: 21; 1972: 15-16 and fig 8). In the C19 there were similar concentrations of pipemakers in Bath, in the first half of the century in Bridewell Lane and in the 1850s a sudden move to Milk St, where there was a dense concentration in the 1860s and 1870s (Brown and Brown 1974: 25, 27-8).

This tendency appears to have been universal among pipemakers - Jean-Léo (1971: 27) notes that at Morlaix (Finistère), on the north coast of Brittany, an alley was called Venelle-aux-Pipes because so many pipemakers lived there at one time. Occasional evidence for the C19 - for example in Glasgow and one case in Montreal - suggests that the proprietors of large firms could live in residential districts or fashionable country areas, but this is the exception rather than the rule, for though there were large firms operating last century it is likely that most pipemakers worked in an essentially family business and home industry. This probably explains why a number of pipemakers - and nearly all of those in Montreal - were able to move premises repeatedly and still stay in business: essentially they were moving a work-bench or two and a chestful of tools, and certainly in some cases the kiln used was so primitive that it was partially rebuilt for each firing and thus could be abandoned with minimal loss. However, in both

Glasgow and East London the same premises could be occupied by a number of pipemakers, either consecutively or intermittently for periods of up to a century.[21]

In London at least there seems to have been a desire to keep pipemakers out the City - this may have been because its being a home industry, with a kiln perhaps in the house, was regarded as a fire-hazard. In East London and Glasgow's Calton it is noticeable that the industry keeps outside but not far from the city boundaries, no doubt to avoid guild and similar legislation and probably for cheaper labour. In the first half of the C19 the Rainford industry continues to flourish after that in nearby Liverpool has declined, probably because cheaper labour was available. As is noted in 5: I, Glasgow and Edinburgh pipes in the mid-C19 appear to have been much cheaper than certain fashionable London ones - a 21-ins pipe from the former centres cost approximatly the same as certain London cutties in the middle of last century: this may mean Scottish labour was cheaper, especially as it was a longer journey to take the clay from Devon to Scotland than to London.

Early pipemakers, especially those who emigrated to The Netherlands and founded the Gouda pipe industry, appear to have often been nonconformists - the significance of this is probably that nonconformity was strongest in poor areas (as was certainly the case with East London from early times) and among poorer people.

The third point is trade. As already noted, Chester made pipes especially for the slave trade; it may be suspected that as the Chester industry declined and the Liverpool industry rapidly exanded the latter took over this trade - certainly by this time Liverpool was the leading British slaving port, and pipes for the same trade are known to have been made in France. In the C19 and indeed until its last firm closed in 1967 Glasgow had a number of foreign ties: during the second half of last century Glasgow pipes dominated the North American pipe market despite the Montreal industry of the same time, and Glasgow pipes have been found in Australia and Easter Island and are known to have been traded to Africa. Nineteenth-century and late-C18 Liverpool pipes have also been found in North America, and in Ghana; East London pipes were used by the Hudson's Bay Company in North America last century and pipes from the same manufacturer appear to have reached Ghana, Ascension Island, and Australia. Occasionally, Edinburgh pipes also reached North America.

CHAPTER 5

PRODUCTION COSTS AND WAGES

SECTION I: PRODUCTION COSTS

Evidence for production costs, either past or present, is hard to come by; and what there is is widely scattered both geographically and in time. Because of this it is difficult to make any meaningful deductions from the data available, and while comments on certain features and trends which may arise will be attempted, the primary function of this section and the next (on wages) must be considered simply as a place to collect what evidence there is on production costs and wages in the industry and present it in one place, which certainly has not been attempted before.

Unfortunately, no figures are available for Pollock's of Manchester, now the only firm still in production in Britain. No conclusions can be drawn from the prices at which their pipes are sold, for in 1968 one tobacconist in Bath was charging 1s for a Pollock cutty and 2s3d for a long Churchwarden while another in the same city was charging 2s3d for their cutty and 5s for the long Churchwarden.

Another tobacconist in Bath was selling cutties (with leaf decoration on either side of the bowl; make unknown) in 1968 at 10d each, representing a cost of 10s a dozen and a price comparable with the Pollock cutties sold at the less expensive of the other two shops noted above.

McDougall's of Glasgow were unable to give exact figures, as latterly their wages followed a makeshift pattern and were a compromise between piece- and time-rate depending on how much work had been done. Rates were frequently changed, not only because of inflation but also with the type of pipe made. Previously the trimmer received between a third and a half the wage of a moulder: ca.1948 the direct labour cost per gross of average pipes was ca.4s6d (which gives a rate of less than 1/2d a pipe) of which ca.3s3d went to the moulder and ca.1s3d to the trimmer. Had the same pay system been in operation in 1967, however, these costs would have almost trebled - i.e. a moulder would have been paid in the order of 9s a gross and a trimmer, 3s. The direct labour cost for an average pipe in 1967 would therefore have been ca.1d. McDougall's were unable to estimate how much it would have cost to take a pipe as far as the firing stage, but said it would have been less than the 2-1/2d quoted to the writer in 1968 by Southorn's of Broseley (Hemming in litt. 3 August 1968).

About 1958 Southorn's were paying their workers 2s6d an hour: direct comparison with the McDougall figures is difficult, but it is likely that the Southorn figure represents a lower wage, for those employed by that firm were all women - and were thus presumably paid less than men - and were employed on a part-time basis. A Southorn pipe was bought in Leicester in the early 1960s for 4-1/2d, at which price it must certainly have been a cutty (Daniell 1965: 62, presum. that shown in pl IV). Assuming Southorn's estimate of 2-1/2d to take a pipe (presumably a cutty) to the firing stage in 1968 was appreciably higher than the cost for the same work in the early 1960s, but allowing for firing and distribution costs to bring the early 1960s cost back to ca.2-1/2d, it would appear that there would be little profit to the maker by the time the retailer's cut was subtracted from the 4-1/2d. In 1961 it was observed (I. Knight 1961: 34) that clay pipes in Scotland, presumably cutties, were costing between 4d and 5d each, or 4s-5s a dozen, figures which could agree with the Leicester evidence for the cost of Broseley pipes. According to Knight, the price a hundred years earlier had been six for 1d (see below), or 2d a dozen, indicating a 48-fold increase in price over the period.

As noted in 2: VII when discussing the methods of packing clay pipes, the pipes were sold on the principle of caveat emptor, the dealer taking the loss of any broken merchandise. McDougall's delivered home sales by their own vans or carrier, but export sales were FOB a British port. Freight, even to places such as West Africa and Australia, was not a very large item, but various import duties or excise taxes could add 15-30% to the price. By the time freight charges, taxes, and allowances made by the North American dealer to cover losses by damage in transit - which could be very heavy, despite the care in packing - were added to the price of the pipe it would cost twice to three times as much in its country of sale as it would have in Britain (Rodger in litt. 17 January 1972).[1]

G.C. Spence (1942: 53-4), writing during the first half of WW II, noted that the shortage of brier had caused clay pipes to have a "limited revival", with cutties being sold for 2d-3d each and Churchwardens for up to 9d each.

In the 1930s Pollock's of Manchester's cheapest clay cost 2d (B. Rogers 1973: 26), and in Dundee in the early 1930s plain pipes were sold for 1d each and "glossy" ones for 2d each, representing retail prices of 1s and 2s a dozen respectively (D. Phillips 1970: 441-2). Just after WW I a pipe manufactured by White's of Glasgow could be bought in Glasgow for 1/2d (R.B. Wilkie in litt. 28 February 1967) which indicates a retail price of 6d a dozen. The Welsh firm of Pardoe at Nantgarw, near Cardiff, charged wholesale prices of between 2s6d and 4s a gross depending on the type of pipe (I.J. Williams 1932: 143) which gives prices of between 2-1/2d and 4d a dozen wholesale. This firm closed in 1920; the prices are probably from the period immediately preceding that date.

At the Portchester, Portsmouth, firm of Leigh and Co, which was founded in 1840 and continued until after WW II (C. Green 1973a), much of the work latterly was done by workers drifting from job to job taking what they could get (Triggs 1970; Chalkley 1955a: 5th page, quoting Portsmouth Evening News 3 March 1932, though Triggs's reference to them as "tramps or vagabonds" obscures the fact that they must have originally been journeymen pipemakers - happier days for workers at Leigh's factory, however, are suggested by a photograph, unfortunately undated but perhaps Edwardian, of the firm's dozen workmen posed with some of their tools, plus two dogs, in front of the factory (C. Green 1973a), for though all are in working clothes none is poorly dressed and some are relatively young). According to Triggs, the later workmen were paid 8d a gross of 16 dozen pipes. This indicates that they made 24 pipes for 1d, and assuming the average production when fully employed was three gross or a little more a worker might make 2s or slightly more per day or ca.12s a week. A wage well below what was being offered London pipemakers at the beginning of the C19 (see below). The

Macclesfield, Cheshire, firm of Turpin and Son (1840-1927) also gave employment to tramp workmen, who would work for a short while before moving on (G.C. Spence 1942: 56-7): this appears to have been a typical arrangement among pipemakers, for it is noted in Lincolnshire in the second half of last century, where as indicated below the journal of a pipemaker at that time recorded journeymen travelled from firm to firm and that if no work was available it was an unwritten law that the master gave him enough money or food to help him reach his next place of call (Hallgarth 1969: 34).

In Leicester early this century Flanagan's wholesale price for the expensive tripartite-moulded pipes was 6s6d a gross, the pipes being sold retail at 2-1/2d each. This latter price gives a figure per gross of £1 10s brought in by the retailer, or a profit of £1 3 6 which if correct sounds remarkably high. Unfortunately, Flanagan's profit in his price of 6s6d a gross is not stated - the price does indicate, however, that these pipes could be made for a cost (including an unknown amount of profit) of ca.1/2d each. Flanagan sold a gross of his cheapest pipes to publicans for 9d, and these were given free to customers at the taverns. Sixteen of these pipes thus cost 1d to produce, including again an unknown amount of profit (figures from Daniell 1965: 61-2). From the description of Flanagan's manufacturing process and the fact that he and his wife looked after the entire process from preparing the clay to distributing the pipes, it is difficult to believe that pipes could have been produced at a lower price unless a maker had a deposit of local clay immediately available.

The giving away of pipes in public houses appears to have been widespread latterly. Apart from the reference above to Flanagan's cheapest pipes being bought by publicans to be given to customers, G.C. Spence (1942: 60) notes the custom in Cheshire and George Ewart Evans twice refers to it, recording on one occasion (1960: 82, 1967 ed) an informant recalling that at about the beginning of this century in Suffolk pipes "cost a halfpenny; and they used to sell them, and even given them away, in the pubs" and on another occasion (1970: 264) one of the East Anglian farm-labourers who went to work in the maltings at Burton upon Trent recalling that he brought back to Suffolk at the end of his first season there (1901) 90 pipes with pub names on them which had been handed out free at the pubs in Burton (see p.230 above).

At about the same time, Rainford pipes, probably of the cutty type, were being sold (retail?) for 1-1/4d each (Berry 1963: 8). Elsewhere before WW I, possibly in London, pipes (which must have been cutties) could be bought for as little as 2d a dozen; wholesale their cost varied from 1s to 6s a gross according to size and quality (Anonymous 1921a). If 1s a gross represents the wholesale cost of cutties this indicates that the maker could still find a profit in wholesaling a dozen for 1d and that the retailer selling them at 2d a dozen was making 100% profit. Taking the whole sale price of 6s a gross for the most expensive pipes, these were still costing only 1/2d a pipe to make, including the maker's profit.

In December 1921, when the last Bristol pipemaking firm T. George and Co closed, there was a brief report in the local paper (Anonymous 1921b). No pipe prices are given, but amongst the reasons given for closure was the cost of clay - £3 5s a ton when it had formerly been 11s - and the cost of oil - seven times its former price. The date when these former prices held good is not given, but the impression given is that it was probably the turn of the century.

The booklet of prices effective autumn 1900 for almost 2,000 pipe types and styles made in Glasgow, Edinburgh, and Aberdeen (Anonymous 1900) lists prices per gross of from 7-1/4d to 9-1/2d with a few going up to 1s9d, but the majority of types were priced between 8d and 9d. One pipe produced by White's of Glasgow and known as an "Extra Show pipe" had "Time Wage" in the price column, presumably indicating that it had to be custom made (its name probably indicates an unusually elaborately moulded pipe). When ordinary moulds had to be altered to do work involving a "thick wire or poker" (for the use of the latter term in the Glasgow industry see 2: VII) 2d was added to the price of each gross, though how the mould was "altered" is not stated.

Prices, however, also varied depending on the type of clay used and on certain features added or modifications made. For example, it was stated (Anonymous 1900: 4) that all "Plugs" increased the cost of the pipe by 2d a gross and that inclusion of a "venting needle" as used on White's "absorbent heads" (cf Fleming 1923: 243) put the cost of a gross up by 6d. (What precisely these features were is uncertain - both suggest some sort of cleaning method.) Pipes made of red clay cost 1/2d a gross extra, those made of terra cotta 1d a gross extra, and those made of "prepared clay" 4d a gross extra for "straights" and 6d a gross extra for "bent bowls".[2] With the demise of the industry the meanings of many of these terms have been lost, but a manuscript note at the foot of the same page in the copy of the booklet in this writer's possession (original in the Huntly House Museum, Edinburgh) gives what appears to be definitions for the clay types. The red clay is described as "common (tile) clay"; the terra cotta as "Doulton's", presumably a reference to the Lambeth stoneware firm of that name originating in 1815 (R. Edwards 1973: 7) which still exists, though now at Stoke-on-Trent and specializing in bone china (information from Miss D.M. Griffiths, Research Division, National Historic Parks and Sites Branch, Ottawa); and the prepared clay - rather obscurely - as "mixed with etc".

These prices give costs of ca.3/4d for the ordinary range of pipes and up to 1-3/4d a dozen for more elaborate pipes and long-stemmed pipes such as White's and Davidson's 21-and 22-ins examples, prices which agree with other evidence for wholesale prices about this period. Interestingly, however, 1-3/4d a dozen for the 21-ins pipe is half the cost for the same type recorded earlier, in mid-century both in Glasgow and Edinburgh (see below). The price for the 16-ins White's pipe in 1900, 1s2d a gross or ca.1-1/4d a dozen, is also half what Glasgow pipes of this length cost ca.50 years previously (see below).

Elsewhere in the prefatory notes (p.3) there is one "that the new moulds presently [sic] in dispute...be paid at 8-1/2d per gross making", that no new pipes were to cost under 8d a gross, that "new carving or alteration in fillet" was not to effect prices, and that 8d pipes were to remain at their previous price. (The carving presumably refers to minor engraving changes on the mould; the fillet may have been the piece carrying the name of the maker and place of manufacture or the type-name of the pipe.) This agreement is a reference to a dispute at McDougall's, and has all the indictions of a compromise agreement. It also indicates, as does the sub-title of the booklet - Price List as agreed between the Employers and Employees... - that the employees had some say in fixing the prices, presumably because their wages, which would have been piece-rate, were a proportion of the selling price (for more details of this see Section II below).

In Wright's Bristol and Clifton Directory for 1892, by which time Bristol's clay pipe industry was almost dead, the firm of T.J. Corcoran ran an advertisement which listed "Irish, Straws and Meerschaum Patterns 1s6d per gross Assorted cutties 1s0d per gross." Straws refer to long-stemmed pipes (see Appendix II); Irish may refer to Dublin, Cork, and Limerick types of clay pipes, though all those seen by this writer have been short-stemmed which makes their inclusion among the more expensive types puzzling. "Meerschaum patterns" were undoubtedly elaborately-moulded pipes in ballclay or kaolin imitating meerschaum bowl styles, usually taking a stem of some material other than clay. The prices given indicate that expensive pipes at this date cost only 1-1/2d a dozen, and the cheap pipes 1d a dozen. For an extra 2d a gross, provided the order was for four gross or more, pipes could be "personalized" by having one's name and address stamped on them - a free sample would be sent on request. A rhyme current in St Jude's at the turn of last century referred to pubs selling a pipe for a farthing (see p.750 below): even at this rock-bottom price a dozen would have cost 3d, twice Corcoran's price for his quality products and thrice for his "Assorted cutties", suggesting a 200-300% mark-up even if the publican paid the additional 2d a gross for personalized pipes. (Two different examples of pipes stamped in this manner were found in the 1960s during the demolition of property in Lamb St, St Jude's, where Corcoran worked. These are noted in 2: VII.)

Penn, writing at the beginning of the C20 (1901: 151), says that pipes were cheap but that as recently as 1882 (in London?) pipes "moulded with figures" cost 6d each, which represents a price of 6s a dozen. These must have been elaborate and expensive pipes, similar to those noted below, for a source of the 1880s says that pipes were made so cheaply that the commoner kinds could be retailed with profit at 1/4d each (Enc. Brit. 9th ed 1875-89: XIX, 111) a price which represents 3d profit for a dozen.

Recently a journal of a pipemaker at Market Rasen, Lincolnshire, in the second half of last century has been found (Hallgarth 1969). Its author was George Spencer Watkinson jr who worked for his father and in 1885 took over the business, which had been founded in 1843. During the second half of the century the business expanded, taking over factories in Lincoln, Brigg, and Louth - these may well have been bankrupt small concerns, for a study of pipemaking in Lincolnshire (paper by P.K. Wells at the Spring Conference of the Society for Post-Medieval Archaeology, Lincoln, March 1969) indicates a pronounced drop in makers during the later 1850s and an even more pronounced one in the later 1860s, after which the industry steadily dwindled. An interesting comment on the journeyman-pipemaker who travelled from firm to firm is that if no work were available it was the unwritten law the master-pipemaker would give him enough money or food to help him reach his next place of call. Hallgarth mentions good journeymen-workers might earn 20s-24s a week, but unfortunately at this point has made an aside about other journeymen who tramped the C19 roads - tailors, shoemakers, and carpenters - and it is not clear whether these wages are specifically applicable to journeymen pipemakers.

Pay was by piece-rate. Watkinson snr paid his workers 1s6d a gross for the 24-ins Churchwarden, 1s a gross for an 18-ins pipe apparently called a common clay (generally, however, this term seems to be synonymous with cutty), 9d a gross for 10-ins pipes called dandies, and 7-1/2d a gross for a 4-1/2-ins cutty. Each gross was 16 dozen - 192. The girls doing the trimming received 1d-3d a gross depending on the size of the pipe.

The pipes were sold to country inns and grocers' shops - a charge of 1-1/2d a time was made at toll-bars for the horse and cart which took round the pipes, which were packed in straw in cases and barrels. Grocers sold them at costs varying from 2d or 3d each for Churchwardens to 1d for three or four cutties.

Taking a figure of about three gross, which seems to be an average daily production for a pipemaker (see below), and assuming this would apply to average-sized pipes, but probably not to the 24-ins types, a journeyman employed by Watkinson in, say, the third quarter of last century might earn ca.3s a day or ca.18s a six-day week, rather less than the 20s-24s noted previously.

In 1851 it is noted that Watkinson snr had "several" journeymen and two apprentices "living in". Assuming there were six journeymen each earning ca.£18s a week and that the apprentices were paid the equivalent of 10s each in board and possibly a small cash allowance, Watkinson's weekly outlay on wages might have been ca.£6 8s. If each journeyman made ca.3 gross pipes a day their weekly output would have been ca.108 gross; if the apprentices also made some the total output of the factory might have been ca.120 gross, though as no trimmers are mentioned the apprentices may have done this. Prices of pipes would obviously vary considerably between that of a cutty and that of a Churchwarden, but estimating an overall average wholesale price of 3d a dozen and reckoning on a gross by this time being 12 dozen then the week's output of ca.120 gross might realize ca.£18. If wages came to ca.£6 8s this would leave a total of ca.£11 12s a week to cover all other expenses - the clay (which was brought by water from Devon to Gainsborough and taken by cart, and later by rail, the last 20 miles to Market Rasen), the coal used as fuel, all the running expenses and equipment and distribution - and leave enough for the Watkinson family (with 14 children) to live on. The sum is probably adequate for the period.

A price-list of the products of Ebenezer Church of North St, Pentonville, London (see 4: VI), "corrected to May 1879" and in the possession of this writer indicates an extensive variety of pipes and cigar-holders, with widely-ranging prices. The cigar-holders all cost 6s a gross in their basic "polished" form; "plated rims" cost another 7s a gross extra, and "goose-bone stems" another 2s a gross extra. "Superior Clay Bowls (moveable stems)" all cost 15s a gross with goose bone stems except for the Clay Blocks model, which cost 20s a gross with "best long bones" stems; otherwise, best long bones, extra finish, and plated rims all cost extra. "Spécialité Clays" cost from 6s to 24s a gross depending on finish, mounting, and type of stem fitted. However, the normal run of traditional clays cost from 1s8d a gross for types such as the Scotch Cutty, through 1s10d and 2s for two types of Burns Cutty, 2s6d and 3s for most of the various "Irish Clays" (save for the Long Cork Irish at 5s a gross and the Heavy Cork Irish at 6s a gross, which was in fact the most expensive of all), 2s9d for 8-ins Broseley Straws and 10-ins Dutch Straws, 2s10d for 15-ins Parlor [sic] Pipes, 3s3d for 15-ins Hotel Straws, and 3s3d and 3s9d for two types of 15-ins Broseley Straws, with the 18-ins Masonic Alderman occupying pride of place among the long-stemmed pipes at 5s6d a gross. "Bent Clays. Carved or Plain" all cost 3s6d a gross.

These prices indicate that the cheapest pipes cost ca.1-3/4-2d a dozen, that rather more elaborate ones cost 2-1/2d-3-1/2d a dozen depending on their design, and that long-stemmed pipes varied from 2-3/4d to 5-1/2d a dozen depending on length and design. All these figures are much higher than those noted above for Bristol pipes in 1892 and Scottish pipes in 1900, suggesting that as late as 1879 Church was still catering for middle-class patrons.

An 1875 catalogue of a large London general store, R. Hovenden and Sons, listed clay pipes over a wide range of prices depending on style and quality (Anonymous 1875: 111). One-gross wooden boxes of assorted pipes came in a whole range of prices from 2s6d to 8s; 4-ins Dutch straws were 2s9d a gross; 5-, 6-, and 9-ins London straws cost 3s a gross and 16-ins London straws 4s6d (to have a gross of the latter in "card" boxes of a dozen each cost 7s6d which gives an idea of the cost of packaging); while "Fancy Clay Pipes, With Glass Eyes" listed as elephant, horse's head, ram's head, and donkey's head all cost 6s6d a gross. "Mounted Clays, Superior Colouring" cost 2s3d per dozen, silver and amber ones in cases costing 18s a dozen. The cheaper mounted pipes were therefore presumably mounted with horn, the normal mouthpiece for brier pipes before vulcanite was invented. On these prices, therefore, which are presumably retail, clay pipes cost 2-1/2d to 8d a dozen, medium-length ones costing 3d a dozen, 16-ins ones 4-1/2d, and "fancy" ones 6-1/2d.

Ledger entries and bills from the Angel Hotel, Abergavenny, now in the Abergavenny and District Museum, give costs for Broseley pipes supplied between the 1850s and 1870s by the firms of William Southorn and Edwin Southorn (FIG 141 shows a bill from William Southorn and Co; I am extremely grateful to the Curator of the Abergavenny and District Museum, D.W.D. Thacker, for giving me the original of this).

Ledger amounts and prices (there are a number of "To Goods" entries which give a price but not the amount of the pipes ordered) are as follows - all are for pipes bought from William Southorn:

30 August 1865	15 gross pipes	£3 10 6
31 December 1866	20 gross pipes " @ 4/6"	£4 13 0
3 December 1867	20 gross pipes " @ 4/6"	£4 12 6
21 September 1868	12 gross pipes "Box 2/6 4/6"	£4 12 6
13 July (no year given)	"12 Gross best Broseley pipes sent without order & much broken Box 2/6 4/6"	£2 16 6
21 January 1871	"10 Gross B s Pips 6/- Box 3/-"	£3 3 0
2 December 1872	"8 Gro B Smoke Rooms 4/6 & Box 2/-"	£1 18 0

The bill from the same firm mentioned above and illustrated in FIG 141 appears to be for the last above-noted item together with a subsequent "To Goods"; a bill from Edwin Southorn dated 30 November 1874 is for "12 gross

Best P. Tipt" at 4s9d a gross plus the cost of the box, a total of £3 1 0.

These prices indicate that Broseley pipes, probably long-stemmed - the "Broseley Smoke Room" referred to in the 2 December 1872 ledger entry was a pipe 20 ins long according to a Southorn chart showing their various products which is in the possession of this writer - consistently cost 4s6d a gross, a price which gives a cost of 4-1/2d per dozen. The "B s Pips" noted costing 6s a gross - 6d a dozen - in the 21 January 1871 entry are probably a longer-stemmed type, of which the Southorn chart illustrates three, of 21 ins, 27 ins, and 28 ins length, though none can be identified with the cryptic wording of the ledger entry. (If "B s Pips" were to refer to Broseley Smoke Rooms then the 4s6d version noted 2 December 1872 might in fact have been the Short Broseley Smoke Rooms, a version with a 16-ins stem, 2 ins shorter than the Broseley Smoke Room.) Edwin Southorn's "Best P. Tipt" must refer to pipes with lacquered or otherwise treated mouthpieces. According to Jewitt (1878: I, 298) Edwin Southorn's fame included his use of glazed mouthpieces, but tipping of pipestems in wax or glaze was certainly known long before Southorn's time (2: VII and Appendix IV); Southorn may, however, have used a characteristic form of tipping. (The gross prices listed probably all include the cost of the box, even when this is not specifically stated. For example, the 31 December 1866 entry of 20 gross at 4s6d a gross would come to £4 10 0, which suggests the additional 3s represented in the stated total must have been for a box. If the price per gross for the order of 30 August 1865 was 4s6d then the calculations here too would have to include 3s for the box. An example of Southorn pipes in an original box is at the Welsh Folk Museum, St Fagans, Cardiff; it is a large flat box similar to a tie-box but much larger, though for shipping by the gross some larger and much stronger container must have been used. Possibly boxes such as that at St Fagans were put in packing-cases full of chaff or sawdust or some other padding.)

Broseley, at least specifically Southorn, pipes last century were accounted the best in Britain, a reputation which from specimens seen by this writer was merited so far as their manufacturing quality was concerned and which had the specific seal of approval set by the pronouncement (quoted on the letter-head of Edwin Southorn's bill) that "The best pipe is unquestionably the 'Churchwarden' or long clay" by a Dr Richardson at the Bath meeting of the British Association in 1864 (cf Jewitt 1878: I, 298). (It should be noted that the term Churchwarden appears to have initially been associated with a Southorn product and may indeed have been invented by a member of the family (see Appendix II).) It appears, therefore, that premier-quality Broseley pipes were costing 4-1/2d-6d a dozen for long-stemmed examples in the 1850s to 1870s. Presumably cutty-sized Southorn pipes were in the 2d-3d a dozen range and the very longest pipes - the Wm Southorn and Co illustrated chart shows one, a "Long Dutch Straw", 28 ins long - possibly 6d-7d a dozen. Such figures seem comparable to those from Hovenden's 1875 catalogue quoted above and somewhat more than roughly-comparable pipes being produced in Glasgow (see below), which were certainly outselling English pipes abroad at that time.

The Angel Hotel's ledger-books show that the then owner, R. Morgan, was also buying pipes from at least two other sources during this period. In the 1860s he bought from Richard Spooner of the Cambrian Pipe Factory, Tredegar, ca.10 miles WSW of Abergavenny; and in the 1850s and 1860s he was buying from the Bristol firm of Ring. The Spooner entries give the prices paid but unfortunately not the amount of pipes bought, the entry merely reading "To Pipes", but a number of the Ring purchases are given in detail as follows:

20 March 1860	23 gross 19-ins "Straws Glazed Pipes" at 3s a gross, with two boxes costing 8s	£3 17 0
4 June 1862	12 gross 19-ins "Broseleys" and box costing 4s	£2 0 0
7 July 1863	13 gross 19-ins "Broseleys" and box (price not stated)	£2 9 6
8 March 1864	"Do" and four boxes (price not stated)	£2 12 0
9 June 1864	"Do" and box costing 4s	£1 19 0

From the first two entries it appears that 19-ins pipes from Ring were costing 3s a gross, or 3d a dozen, a price somewhat lower than that for similar Southorn products. The third entry suggests, if one assumes the box referred to cost the same - 4s - as the previous year, that the price of Ring's 19-ins "Broseleys" had gone up 1/2d a dozen since the preceding purchase 13 months earlier. The next entry, however, suggests the cost may have gone down to just over 2-3/4d a dozen, for if the four boxes noted here but not priced cost 4s each as elsewhere the 13 dozen pipes would have cost £1 16s. The next entry, dating to only three months later indicates a further if slight drop, 13 gross now costing 35s or fractionally under 2-3/4d a dozen. A subsequent entry dated 21 June 1866 where an unspecified number of pipes and two boxes each costing 2s came to a total of £2 3 0 suggests the cost may have returned to 3s a gross (3d a dozen) - if 13 gross were bought on this occasion as earlier 3s a gross would give a total cost of £1 19 0, the ledger total minus the cost of the boxes.

It might be expected that products lacking the fame of those of Southorn would cost less than the latter - the use of the term "Broseleys" by Ring's as early as 1862 suggests the desire to plagiarize products of that centre - but it is perhaps surprising that the average of 3d a dozen for 19-ins pipes should be so close to the mid-century Scottish prices of 2d for cutties, 2-1/2d for 16-ins, and 3-1/2d for 21-ins pipes when it appears Scottish pipes were outselling English pipes so markedly in North America. Ring, however, is one of the relatively few C19 English makers whose pipes have been found in North America, though finds of Ring pipes there are not common (see 6: VII(b)). Ring's prices in the 1860s may have been lower than earlier, however, for the period 1861-67 as noted later (6: VI and *passim*) saw the sudden final collapse of the Bristol industry and this may have occasioned a lowering of prices in Bristol as firms there fought for survival. Certainly by the 1890s (see above) long-stemmed pipes made in Bristol were costing half of the prices listed here.

In the middle of the C19 Mayhew (1861-62: I, 440, 1968 ed) records that porcelain pipes, or at least porcelain pipe bowls, were sold for 6d each, the street pedlars obtaining them at 4s a dozen wholesale. "Comic head" clay pipes were usually sold for 2d each and obtained for 1s4d a dozen or 15s a gross wholesale. Mayhew continues:

> There are now nine men selling pipes,[3] which they frequently raffle at the public-houses; it is not unusual for four persons to raffle at 1/2d. each, for a "comic head." The most costly pipes are not now offered in the streets, but a few are sold on race-courses. I am informed that none of the pipe-sellers depend [sic] entirely upon their traffic in those wares, but occasionally sell (or raffle) such things as china ornaments or table covers, or tobacco or snuff boxes. If, therefore, we calculate that four persons[3] sell pipes daily the year through, taking each 25s. (and clearing 10s.), we find 260l. yearly expended upon the hawkers' pipes.

With a wholesale price of 15s a gross (above) this indicates a hawker sold ca.240 pipes a day, a figure which illustrate the short life these items had.

As these "comic head" pipes were often works of considerable artistry (e.g. Fresco-Corbu 1445-6; 1967: 1474 and 1477) plain clays - not noted by Mayhew but see below - must have been very much cheaper, particularly as at least some of the "comic heads" were imported from France. Presumably the supplier of pipes wholesale was a middleman, which indicates that the final selling price covered profit by maker, middleman, and vendor, the last-named making 2s in a dozen on "china-bowls" and 8d in the dozen on "comic heads". As the middleman was selling the latter type at between 1-1/4d and 1-1/2d each he must have been buying them for not much more than 1/2d each, a price which was still profitable for the manufacturer.

Fairholt (1859: 179n.) describes a situation very similar to that described by Mayhew, and gives a wholesale price for what seem to be cheap pipes of 1s4d a gross and a retail price of four for 1d. These figures indicate that a dozen cheap pipes - presumably cheap cutties - could be sold by the manufacturer for just over 1-1/4d and still produce a profit. Retail, a dozen of these pipes would have cost 3d, which indicates a vendor's profit of just over 1-1/2d a dozen or just over 100%. However, the street-vendors who sold these pipes (Anonymous 1856a: 92-3, repeated in Fairholt 1859: 178-9) presumably did not obtain their pipes directly from the manufacturer, but as in the case of Mayhew's vendors, through a middleman, who no doubt took the lion's share of the profit noted above. The fact that by the time Flanagan was working in Leicester the cheapest pipes were being sold to publicans who gave them free to customers suggests that before 1900 it had become impractical to retail these pipes - indeed the reason Mayhew's vendors apparently sold only the more expensive pipes may have been for this reason, in which case the anonymous 1856 reference to hawking cheap pipes may refer to a period some time before 1856. (The remarks on hawking pipes, obviously a very common practice in the mid-C19, are interesting (cf 2: VII), for among the new by-laws of the London pipemakers' guild dated 23 January 1805 was one forbidding members to hawk or to allow their products to be hawked: 10s was the fine for the first offence, 20s for the second, and 40s for the third (quoted in Robinson and Spence 1937: 208).) The price per dozen for these cheapest pipes is comparable with that for single "comic heads" pipes given by Mayhew, suggesting the latter were 12 times as expensive to produce as the cheap pipes, a figure which may be broadly accurate.

Fairholt also depicts (1859: 189) a pipe made in the shape of a broom by a French manufacturer and apparently of a most superior type, which was being sold in England for 6d. In view of the number of middlemen these pipes must have passed through, and probable import duties in addition, it is clear that even elaborate pipes could be produced quite cheaply, though in this case it is possible production costs in France were much lower than in England. According to the anonymous observer noted above (Anonymous 1856a, quoted in Fairholt 1859: 178) a pipemaker's business "when trade is prosperous and the demand brisk" made about 45 gross pipes a day "which gives an average of nearly five hundred pipes per diem for each of the hands employed" (this was in East London "in a back-lane in a turning out of a street running from Whitechapel Road"). Assuming the gross referred to was 180, ca.8,100 pipes were made a day (or ca.6,500 if the conventional gross is meant). If the average production was nearly 500 pipes per man then the factory had ca.14-17 workers, though whether the latter figure excludes the non-moulding workers - trimmers, packers, etc - is not clear. The type of pipe being made is not stated, but applying Fairholt's wholesale price of 1s4d a gross (which admittedly does not come from the same source as his production figures) to the daily output of ca.45 gross would indicate a daily income of ca.£3 or ca.£18 weekly, the same figure arrived at for Watkinson's factory at Market Rasen at about the same time. However, Watkinson was estimated to have had only 6 journeymen and 2 apprentices - 14 to 17 men paid out of a weekly £18 income must have been paid ca.10s, almost half what Watkinson's journeymen earned but more than double the pay in Bristol in mid-century (see below).

What evidence there is available for daily production suggests ca.500 pipes per person is a reasonable estimate. Pollock's estimated three gross or a little more for the production of short pipes (that is, covering the whole sequence from rolling to trimming).

When the last Bristol pipemaking firm, George's, closed in 1921 they had employed for their last two years three pipemakers who produced an average of 50 gross a week (Anonymous 1921a). Assuming a six-day week this gives a daily average per pipemaker of ca.2-3/4 gross - somewhat less than that at Pollock's but probably compatible with declining sales at that time which had left George's with nine months' stock on hand. (A five-day week would give a daily production rate of 3-1/3 gross.) Throughout the 1950s and the mid-1960s until the final run-down of the firm towards its closure in 1967 McDougall's were producing 60 gross pipes a week (Walker and Walker 1969: 145-6) though the number of workers is not noted - there were two immediately prior to the firm's closing. In 1954, immediately before White's of Glasgow closed, they were said in a newspaper account (Anonymous 1954b) to be still producing 100 gross a day, but this is certainly impossible - 100 gross a week may have been meant, though an account of White's appearing about the same time (Samson 1954: 10) implied White's had then only two moulders, and they would have to produce 10 gross each a day during a five-day week to make 100 gross in a week, a figure which is almost impossibly high (see below).

E.H. Knight (1876: 2584) claims that one worker could produce four-and-a-half gross a day, but figures which can be deduced from wages paid in London at the end of the C18 and the beginning of the C19 (discussed below) indicate three gross was an average figure. Ure (1848 ed) says that a man and a boy could easily make five gross a day - the boy making the rolls (in this case said to comprise separate pieces for stem and bowl - see 2: VII) which would give an average of two-and-a-half gross per person. Hughes (1961b: 1634), who is admittedly not a reliable source, says a skilled worker could produce 20 gross in a 65-hour week, the workday being just over 10-1/2 hours. This implies a six-day week and thus a daily production of two-and-two-thirds gross.

Hallgarth's figure of 12 gross a day (1969: 34) "if the orders justified it" seems unbelievably high, for even with a gross of 144 this would come to over 1,700 pipes a day, and even working a 12-hour day this would mean a gross an hour or between two and three a minute non-stop. Weld however (notes 1832: 513), notes that the rate for moulding alone at Knockcrogherty in west-central Ireland (see 2: VII) was "seven or eight groce" in a day "during the ordinary hours of working; but more might be done with exertion". A retired pipemaker with the firm of Pardoe at Nantgarw near Cardiff which closed in 1920 is recorded ca.1930 as saying (I.J. Williams 1932: 142) that with his wife and daughter assisting in cleaning the moulds and trimming the pipes his output was 60 gross of 168 (14 dozen) each in a week. Assuming a six-day week this would give a figure of ten gross a day - more if a five-and-a-half day week was worked - which is not far from Hallgarth's figure, but Williams's account of Nantgarw pipemaking does not seem to be accurate in some other aspects (see 2: VII), and this writer does not feel happy about accepting either his figures or those of Hallgarth. In any case, the involvement of two other people at Nantgarw argues for the figure there to be divided by three; possibly this should apply to other figures also. That a rate of two to three moulded pipes a minute could be kept up for an entire day, and for day after day, is difficult to accept, but perhaps only so to a person brought up on eight-hour, five-day weeks with unionized breaks and other modern working conditions.

One point that is not clear is whether the rolling and moulding processes were normally done by the same worker last century, as certainly is the case in the restricted industry of today. The figure of ca.3 gross probably refers only to finished pipes per day, as indeed Pollock's figure and other evidence indicate, so that rolling and moulding (i.e. with the trimming excluded) would have been a higher figure. Chalkley (1955b: 8) claimed the standard production-rate for a skilled moulder was one gross of 150 an hour. One is reluctant to accept most of Chalkley's statements without other evidence to back them, but this rate would allow figures last century of 8-10 gross a day for moulding only, and it may be that the apparent discrepancies between figures of ca.3 gross a day and those of 8-12 gross are caused by confusion between the number simply moulded and the number finished as far as the stoving process. Support for this conclusion comes from figures, if not for current production at Courtrai in Belgium then for production there in the fairly recent past (see 2: III), where it is stated (Van Hooneker 1971: 244) that in an eight-hour day six gross each of 180 pipes could be made by the rollers and the moulders and six to seven gross could be finished each day by the trimmers. As in effect the same pipes are being passed from stage to stage in this process (i.e. from roller to moulder to trimmer), the total production of finished pipes is six gross divided by three, the number of stages a pipe passed through, so that actually two gross pipes were finished each day. As the European method of manufacture differs from the British in, among other aspects, having a less easily manipulated tool to form the bowl and in using a more elaborate trimming process, a figure of somewhat less than the British three or so gross finished pipes a day would not be unreasonable. Even so, a rate of two to three moulded pipes a minute kept up for hours on end (and this would include the wiring) sounds formidable.

Apperson (1914: 162-4, quoting from N&Q 27 September 1913) notes that pipes sold by Milo, a tobacconist in the Strand, and Inderwick, a tobacconist near Leicester Square, were famous in the 1850s (cf 2: VII). It is implied that these firms actually made their own pipes, and at least in the case of Inderwick's this may have been true. This firm, founded in 1797, still exists (now in Carnaby St but formerly at Whitcombe St, Leicester Square), and certainly made its own meerschaums in which it specialized (see 1: VII(d)). Whether clays were actually made by the firm, however, is uncertain (Inderwick and Co Ltd in litt. 26 February 1969) - it is possible that clays were made for them and stamped with their name after the manner advertised by T.J. Corcoran of Bristol in 1892 and noted above. These pipes were sold for 6d each and Inderwick's were compared to those of Fiolet of Saint-Omer, which suggests, as do the prices, that these were high-quality pipes. Even the Milo cutty, however, appears to have been a well-considered pipe (Apperson 1914: 163-4).

In 1850 in Bristol, when the C19 pipemaking industry there appears to have been about at its height, a woman making pipes in her home up to but excluding the firing stage, apparently for one of the local St Jude's firms, was paid 3s for nine gross of 180 pipes each, out of which 5-1/2d went to the man who prepared the clay for her (anonymous correspondent to the Examiner 17 August 1850). This interesting first-hand account of a pipemaker's existence in the St Jude's slums in the middle of last century is discussed in more detail in Section II below and in 6: VIII, but the figures given indicate a dozen pipes cost 1/3d. To this has to be added the cost of the clay - presumably this was supplied the woman by the firm to whom she sold her pipes - the firing, and the packing, besides the firm's profit and that of a retailer (if indeed the firm did not market its products directly through its own staff): as 19-ins good-quality Bristol pipes were costing 2-3/4d-3-1/2d a dozen in the 1860s (see above), the total production cost of pipes sans profit in Bristol at this time was probably ca.1d a dozen.

In 1840 Thomas Carlyle (1795-1881) ordered the "best, and largest" pipes from the Edinburgh maker Thomas White at 3s6d a gross (Fleming 1923: 244, quoting a copy of Carlyle's letter to a friend requesting him to buy the pipes).[4] On another occasion and at an unspecified date, but probably in the middle or later part of the century, Carlyle ordered 21-inch long pipes from McDougall's which cost 3s6d a gross and refused to accept 16-ins pipes sent him for 1s a gross less because he insisted on the longer stem (recounted by a McDougall worker in Fleming 1923: 246-7). As the same source says that Carlyle would not take English long pipes at any price because they had a curved stem it is clear that Carlyle was extremely fussy as to his pipes, and this and the similar cost quoted suggests that White's "best, and largest" were 21-ins pipes like McDougall's. These costs - 3-1/2d a dozen for 21-ins pipes and 2d a dozen for 16-ins pipes - compare closely to the 2-1/2d-3d a dozen for Ring's 19-ins pipes of ca.25 years later but are lower than the 4-1/2d and more a dozen for the exclusive Southorn products of comparable size also ca.25 years later. Presumably Glasgow pipes captured the C19 market in North America by virtue of superior quality compared to similarly-priced English material, though they may also have had superior marketing (cf 4: IV). The mid-C19 Glasgow figures would broadly agree with I. Knight's statement (1961: 34) that "A hundred years ago" pipes in Glasgow were six for 1d - 2d a dozen - compared to their 1961 price of 4d or 5d each; both sets of prices are presumably for cutties.

Poorly-made pipes in Co. Roscommon, Ireland, were being sold (wholesale to pedlars) at "only" 1s a gross of 12 dozen in 1832, though some time previously they had been sold at 2s6d a gross (Weld 1832: 511). These prices represent 1d and 2-1/2d a dozen wholesale respectively, which from Weld's remarks must have been cheap compared with the prices for better pipes from better production centres.

An Invoice Book of the Poole firm of Slade and Sons, now in the Provincial Archives at St John's, Newfoundland, notes among the goods aboard the "Fame" sailing for Fogo, Newfoundland, two barrels of pipes totalling 36 gross and costing 2s6d a gross - 2-1/2d a dozen. (The pipes were products of William Dowdall, who is noted working in Poole by 1823 - the 1841 census returns give his age then as 60, indicating he must have been born ca.1781, and notes he was a native of Dorset - and whose presumed son, another William Dowdall, is recorded working in Poole as late as 1880 (Cooksey MS 1).)

In 1820 the North-West Company, which merged with its rival the Hudson's Bay Company the following year, obtained for its Canadian trade 30 gross pipes from Samuel Greenland and Thomas Duggan jr for £4 16 8 (P. Miquelon 1971: 96), which works out to a fraction under 3s3d a gross or ca.3-1/4d a dozen. (Duggan was also supplying the Hudson's Bay Company with pipes at this time (Krause 1969-70).) Pipes supplied to the Montreal fur traders during the period 1760-1821 were consistently called "Hunter's pipes"; these could apparently come in varying bowl sizes, for small bowls are repeatedly requested and on one occasion there is a specific request that the next shipment have smaller bowls than the previous (perhaps because tobacco was too expensive to smoke in large amounts). Presumably they were fairly short-stemmed and run-of-the-mill pipes, for there are occasional references to long-stemmed - 15 ins and 18 ins - and "long glazed" pipes (P. Miquelon 1971: 95-6).[5] As noted in 2:VII, glazed pipes could refer either to one with a polished or stroke-burnished surface or to one with a glazed mouthpiece; in either case they would be more expensive than the average cutty pipe even if they were not long-stemmed as they appear to have been here.

Bloice (in Atkinson and Oswald 1969: 219) notes Duggan working from 1823 to 1828, but Krause (loc. cit.) notes he, or perhaps a father and son combination, was supplying pipes to the Hudson's Bay Company from 1807 until 1830 and again (in conjunction with John Ford) in 1832; a Thomas Duggan was a Warden of the London and Westminster Tobacco-Pipe Makers' Guild in 1821 (Robinson and Spence 1937: 203 - this part of the text has been misplaced and should be on p.208) and was still alive in 1828 but dead by 1844 (Robinson and Spence 1937: 210, cf Woodman in Atkinson and Oswald 1969: 176). A Samuel Greenland is not recorded by Bloice, but a Sarah Greensland (sic), 1805-20, is noted and a W. Greenland, 1800-17, both in the same Smithfields area of East London as Duggan; while a George Greenland is noted in 1832 on the south side of the Thames in Bermondsey (Bloice op. cit. 220). It can be taken for granted, therefore, that the pipes supplied the North-West Company were London made and that their prices would reflect London prices.

As noted in the footnote on p.407 above, a group of Bristol pipemakers in 1812 were advertising two types of pipe, one of them with an obscured name beginning "Ne..." and the other listed as "Hunters Ditto", at 1s6d and 1s4d a gross respectively, with a 10% discount allowed for cash (advertisement among the pages of the Bristol Pipemakers' Guild Book). These prices work out at 1-1/2d a dozen and ca.1-1/4d a dozen respectively, figures which are much lower than others of this period for which there is evidence - for example, London prices for presumably average pipes during the period 1809 to at least 1818 were 3-1/2d-4d a dozen (see below) and as noted above the North-West Company was paying ca.3-1/4d a dozen for London pipes in 1820. Indeed, if these latter pipes were in fact Hunter pipes then this style, however many varieties there may have been, was costing well under half its Bristol price in 1812. That Bristol prices were lower than those of London is also suggested by comparison of Bristol prices recorded in an advertisement of 1799 (see below) and London prices of about the same date (see below): it is implied the latter were ca.2-1/2d a dozen, and while this may in fact have been higher than the actual price (for reasons see below) what were clearly the average Bristol prices varied from 1s to 1s4d a dozen for "short" pipes of the type apparently typically used for export while "common long" pipes cost ca.1-3/4d a dozen. Only the obviously prestige "long" pipes cost as high as and higher than the London figures, ranging from 2-1/2d to 4-1/2d a dozen unglazed and from 3d to 5d a dozen glazed. It is clear that the average Bristol pipes in 1799 cost 1d-ca.1-3/4d a dozen, so the 1812 prices of ca.1-1/4d-1-1/2d a dozen in all probability also indicate similarly average prices.

According to Berry (1963: 6), when the Rainford industry was at its height during the period 1800-40, men could earn between 14s6d and 24s a week depending on their skill and exertion - they were paid piece-rate - while women (presumably employed as trimmers) were paid ca.7s a week. Unfortunately, there appears to be some confusion here, for Chandler (1957: 340) quotes exactly the same figures for wages in the pipemaking industry in Liverpool in 1796. Both writers also quote that pipes were sold for 25s6d the gross. As the original source for these figures is not given in either case it is not certain to which place these figures refer, but it is perhaps more likely that it is to Liverpool - if, as it appears to be, it is manuscript source cited in Oswald 1970b: 230 and n.3, cf 228 n.6, then it is indeed Liverpool.

However, there is an additional problem involved with these figures, for the price quoted per gross - 25s6d - gives a cost per dozen of 2s1-1/2d, which seems incredible when compared to detailed figures available for the early 1800s in London. In 1819 the Journeymen Tobacco Pipe Makers of London published a grievance concerning their wages over the preceeding ten years in which they gave both their earnings at various dates and the prices at which pipes were sold by their masters (the Gorgon no 38, 6 February 1819: 302-4; cf no 44, 20 March 1819, 349). In 1809, after a stoppage of 15 weeks over demands for higher pay (the wording suggests a lock-out but it was probably a strike) a wage-increase of 4d a gross resulted in the Masters' increasing the wholesale cost of their pipes from 2s a gross to 3s6d and in some cases as high as 4s a gross. These prices continued to be standard until the time of writing, though the wages had been steadily reduced over the period 1815-18. The wages quoted for 1809 were ca.21s a week before the strike, ca.27s a week after it.

It is thus likely that the 1790s London pipemakers were earning a little less on the average than were Liverpool pipemakers, but it is inconceivable that Liverpool pipes could have been sold for 25s6d a gross while those in London were selling for 2s a gross - this would mean the former were making approximately 12 times the profit of London makers. It seems likely that the figure quoted by Chandler and Berry should be not 2s1-1/2d a dozen (which is what 25s6d a gross comes to) but 2s1-1/2d a gross. This figure would be compatible with the London prices. This would be in agreement with a reference to the Hudson's Bay Company selling pipes - source not stated, but Hudson Bay Company records indicate a London supplier at this time[6] - to its employees at 4d a dozen in 1782 (Nicks 1969: 117 citing HBC Archives E/2/13, Reel 4M3), for one might expect the company to make about a hundred per cent profit. Possibly 25s6d was the price for 12 gross. Assuming a cost of ca.2s a gross for pipes at this time, it is interesting to compare this figure for some available for pottery in Staffordshire in 1770 cited by Shaw (1829: 207-8, 1970 ed). Two shillings would buy a 20-ins dish, an 8-ins nappy or baking dish, the smallest of three sizes of tureen, and the second largest of five sizes of sauce-boats; London-size cups and saucers cost 1s (presumably the pair) and Irish-size 1s2d, while "Inlett" Teapots cost 2s6d (all these prices were for best quality; seconds cost about a quarter less and what were disarmingly called "worser seconds" were priced at half the cost of bests).

The figures from the Gorgon as to wages and prices are as follows:

Wages		
ca.1799	ca.18s	ca.2s6d a gross(?)
1809, pre-strike:	ca.21s	ca.2s6d a gross
1809, post-strike:	ca.27s	3s6d-4s a gross
1815	ca.24s	3s6d-4s a gross
six months later (still 1815?)	ca.21s	3s6d-4s a gross
another six months later (1816)	ca.18s	3s6d-4s a gross
proposed wage 1818 (resulted in second strike)	ca.15s	3s6d-4s a gross

On each occasion the 3s drop represented a reduction in wages of 2d per gross of pipes made, and the 6s increase in 1809 represented an increase of

4d a gross. Thus, assuming a six-day week, the average pipemaker made three gross pipes a day, a figure which seems reasonable in the light of other evidence available. From this it can be seen that in the 1790s London pipemakers were earning a little less on the average than those in Liverpool, and that they had received at least one increase (probably one of 3s) between ca.1799 and their successful strike in 1809. (This is not noted by the journeymen in their petition, and there is probably some inaccuracy in the prices they quote for this time, for the same price - ca.2s6d a gross - appears to apply before and after this unmentioned raise. The journeymen do not fail to point out, however, that their 1809 increase added only 4d to the price of a gross while the Makers took the opportunity to put up the wholesale price by 1s-1s6d.)

By February 1819 the London journeymen's strike had lasted 11 weeks, but a friend had procured them a factory, and by a week later (op. cit. no 39, 13 February 1819: 312) they were producing their own pipes in The Maze, Borough (Southwark). Significantly, the slums of the Borough were regarded by early and mid-Victorians as among those representing working-class London at its worst, before the East End came to be considered archetypal of London slums in the later C19 (Keating 1973: 586).

A 1799 advertisement among the pages of the Bristol Pipemakers' Guild Book of a group of Bristol pipemakers - Anna Viner, John Carey, Joseph Edwards jr, and Samuel Richards jr - gives considerable detail on pipe prices in Bristol at this date. The advertisement, directed at "Merchants, Captains of Ships, and Others", give the following prices:

"long tobacco pipes" - 3s, 3s6d, and 5s a gross "Glazed" and
    2s6d, 3s, and 4s6d a gross "Not glazed";
"common long tobacco pipes" - 1s8d a gross;
"short tobacco pipes, syitable [sic] for the different
    West-Africa markets" - 1s4d and 1s2d a gross;
"short tobacco pipes, suitable for the different American
    markets" - 1s4d, 1s3d, 1s2d, and 1s a gross;
"short tobacco pipes, suitable for the Irish and Spanish
    markets" - 1s3d, 1s2d, and 1s a gross.

From this it seems clear there were certain types traditionally associated with the various oversea markets, all of them short-stemmed pipes, while long-stemmed pipes it was implied were basically for the home market. To judge by the prices for the "long tobacco pipes" these were prestige products, well above the "common long tobacco pipes" in quality. Unfortunately, the London price of ca.2s6d a gross noted above for ca.1799 is not for any specified class of pipe and in fact the price at this time may have been lower (see above), which makes a comparison between London and Bristol prices at this time difficult; but even if the price at this time was ca.2s a gross, and assuming it was for average types of pipes in London, then Bristol figures still indicate lower prices there, for it is clear the "average" pipes in Bristol at this time were the "short" pipes ranging from 1s to 1s4d a gross and the "long common" pipes at 1s8d a gross, and that the "long" pipes costing 2s6d-5s a gross depending on type and whether they were glazed were of a superior class.

In G. Kearsley's Table of Trades (1786), an alphabetical list of trades with some details on them, the following information is given under Tobacco Pipe Maker. An apprentice's fee was from £5 to £10, a journeyman was paid 10s-14s a week without board or £12-£15 a year with board, and £20-£30 was required to set up business. Unfortunately, Kearsley is based on J. Collyer's The Parents' and Guardians' Directory and the Youths' Guide in the Choice of a Profession or Trade (1761), and according to George (1925: 360 n.8, 1966 ed) several entries in Kearsley do not appear to have fully incorporated wage increases since 1761. George also notes that both these works deal mainly with trades in Middlesex, Westminster, and the out-parishes - where, as noted in 4: VI, the majority of the pipemakers appear to have worked - and not with the City trades. An earlier work, Campbell's The London Tradesman... (1747, republished 1969) also deals with trades outside the City, and according to George this forms the basis of Collyer and therefore indirectly for Kearsley. Unfortunately, it has not been possible to consult a copy of Collyer, but Campbell, talking of pipemakers, says (1747: 337, 326, 1969 ed) apprentices' fees ranged from nothing to £5, that hours of work were from 5 a.m. to 8 p.m., that a journeyman earned 10s-15s a week "the few that are of them constantly employed", and that £20 to £50 was needed to set up as a master. These figures do not differ enough from those quoted by Kearsley to suggest that Collyer or Kearsley had updated Campbell's information.

In the same year, 1747, as Campbell published his work there appeared Waller's A General Description of all Trades... dealing with City trades. This source, while giving slightly differing figures in its entry on pipemaking , provides similar information to that given above. Apprenticeship cost £5 though sometimes there was no fee, the hours were 5 a.m. to 8 p.m., a journeyman could earn 10s-21s a week, and to set up as a master £20-£30 was needed (cf Oswald 1970b: 230). The ca.18s a week noted earlier as being a journeyman's wages ca.1799 suggests that Kearsley's 10s-14s refers to an earlier time than 1786 - probably to mid-century, if Campbell's figures are up-to-date. In any event, the comparison of these figures with that of ca.18s for the very end of the C18 indicates that pipemakers' wages increased during the second half of the century, despite the general decline in the market for clay pipes during this time as noted elsewhere from a number of sources. However, as Campbell notes, few journeymen were constantly employed and the work was "but moderately profitable." An increase of the amount indicated is likely to have kept wages in general step with the rise in the cost of living in London after 1750 (discussed later).

Regarding the difference between wholesale and retail prices, this cannot really have occurred until factories, as opposed to home industry businesses, became common, which on previous evidence would probably be towards the end of the C18. Prior to this the pipemaker probably sold either directly from his premises or had a pipe round (cf Mitchell and Leys 1958: 209, 1963 ed). Campbell indicates that pipe rounds were common by the mid-C18, for talking of the age at which a youth should be apprenticed in the trade, he says "Fourteen or Fifteen is Time enough to bind a Lad, because tho' the Pipe-Making is not immoderately laborious, yet their Strength is tried in carrying Pipes to the publick Houses in the City and

Suburbs."

An inventory of the assets of a Lincolnshire pipemaker, Isaac Bilby of Spalding, made in 1728 lists a gross of fired pipes with a value of 15s (P.K. Wells, paper at Spring Conference of the Society for Post-Medieval Archaeology, Lincoln, March 1969; P.K. Wells 1972: 14) which represents a price of 1s3d a dozen. This must surely be an error - 1s3d a gross, or 1-1/4d a dozen, would be a much more reasonable price in the light of other near-contemporary evidence, and it seems likely the inventory intended to say 12 gross pipes valued at 15s. This mistake seems similar to the one noted above for prices in Liverpool in 1796 (Peter Wells and I have discussed this matter; the documentary source clearly states 15s as the cost of the gross but he feels the above explanation is the most likely).

Sheppard (1902: 4-5, 1912 ed) gives a number of entries taken from the household account book of Charles Warton of Beverley Parks, Yorkshire, relating to his purchases between 1709 and 1714. Most of his purchases were made by an agent, apparently in Kingston upon Hull, and not only is the price of the pipes given but the additional expenses incurred in bringing them from Hull are sometimes itemized. For example, a gross of Dutch pipes cost his agent 2s4d; the agent had to pay 1d for "carrying the pipes to the boat" and 3d for "a basket to bring the pipes in," and Warton then had to pay another person 2d to bring the pipes from Hull, bringing the total cost to 2s10d or almost a quarter more. (A subsequent entry indicates that the eight-mile journey from Hull to Beverley on at least one occasion, and probably in every case, was by water).

Warton was evidently fond of Dutch pipes, for he bought them on several occasions. A gross in 1711 cost 2s4d (the item noted above), in 1712 a half-gross was bought on two different occasions for 1s6d and 1s8d respectively, in 1714 eight dozen were bought for 2s8d, and in 1714 a gross for 1s6d. These figures (which exclude local delivery charges to Wharton) indicate the price of a dozen Dutch pipes varied between just over 2-1/4d and 4d. These prices were only slightly higher than those Wharton paid for English pipes (see below), which is surprising in view of their superior quality and when one considers they must have been shipped across the North Sea. However, Dutch labour costs were probably much lower than English costs: a 1719 reference (quoted in Donnan (ed) 1931: 241-2) notes that certain items used in the African trade were cheaper to obtain in The Netherlands than in England, pipes being one such item. (The source also noted that at least some of these Dutch goods were not allowed to be imported into England but that the African traders were now allowed to pick up these items from The Netherlands for the African trade, a point which will have to be considered when Dutch pipes are excavated from West African sites (cf I. Walker MS 3).) Whether Warton's prices for Dutch pipes included an English import tax is not known. Dutch pipes were apparently being legally imported before the end of the C17 (Houghton 1695/6: 1st page; repeated in Jewitt 1878: I, 293), but to judge by the variety of Dutch pipes found recently in Plymouth, most dating to ca.1630-70 and particularly to the second quarter of the century (Oswald 1970a: 122-42; 1970b: 230), they were being obtained illegally long before that, for the three C17 charters of the Westminster-London pipemakers' guild - 1619, 1633, and 1662 - gave the guild a theoretical monopoly of pipe-manufacture and had forbidden any pipes to be imported (see 3: I, also 2: IX). Dutch pipes also occur in C17 contexts at Kingston upon Hull (Oswald 1970b: 230-1; cf Sheppard 1902: 16, 1912 ed). There was a tax of 5s per gross between 17 May 1696 (7 and 8 Gul. III C.31, XLIX) and 1 August 1698 (9 Gull. III C.45, I) on Dutch pipes, but no tax of anything like this magnitude could have been levied when Warton was buying his pipes, for 5s per gross represents 5d per dozen, and Warton was buying his pipes for half this sum. (The tax, together with much lesser taxes on English pipes, was abandoned because it was "vexatious and troublesome and very chargeable in the buying and collecting of the same.")

On other occasions Warton bought what must have been English pipes. In 1711 he bought eight dozen "best" pipes for 1s6d (plus 4d for carriage) and the next year he bought three dozen of the "best" for 11d, figures which give prices of 2-1/4d and just over 3-1/4d per dozen respectively. On other occasions he bought unspecified types. In one case the price per dozen is 1-1/2d, on three other occasions the price per dozen works out to 2d. These prices suggest he was buying cheap pipes, presumably locally made. One occasion he was paying 3d per dozen for an unspecified type of pipe, and on another occasion - apparently exceptional - he paid 6d for one dozen of an unspecified type. From Warton's accounts we may suggest, therefore, that "best" quality English pipes cost ca.2-1/4d-3-1/4d a dozen, that Dutch pipes covered the same range but extended a little higher, and that cheap locally-made pipes were costing about one-half to three-quarters those of "best" quality.

The largest outlay for pipes, however, was for Nottingham pipes in 1714: two gross cost 5s6d, a box and cord for them cost 1s1d and two charges for freight from Gainsborough cost 8d altogether. This brought the total cost of the two gross to 7s3d, an expense which elicited the marginal comment "very dear, very dear" from Warton. An entry four days later shows the complexities of arranging for pipes (apparently another shipment from Nottingham) to be shipped from Gainsborough to Beverley, a distance of some 45 miles: "I paid Ed. Webster [the agent] for like he paid Thos. Cook for like he paid from Gainsborough to Hull for bringing by water from Hull to Beverley 2 gross of pipes 0s10d." (Gainsborough is some 35 miles from Nottingham towards Beverley and was a trans-shipping port of local importance (Beckwith 1967) - the pipes may have been bought there because it was the nearest place where Nottingham pipes could be obtained.) The cost of Nottingham pipes, excluding carriage charges, works out to 2-3/4d a dozen. Why Warton should apparently buy two large quantities within four days of each other when the transport costs were so high is not stated - three weeks previously he had also bought half a gross of Dutch pipes.

The Nottingham pipes were almost certainly ones with ornately-decorated stems - a number of these, usually incorporating the maker's name and that of the town in bands either within the decoration or one at either edge of the decoration - are known (Oswald 1959c: 206 fig 41; 1970b: pl 202, pp240, 229; Alvey 1973; see also 1: II(g) above). In this writer's opinion there is a definite Dutch influence in these pipes: the concept of decorated stems (and sometimes the form of decoration, as in the examples noted above), and the edging of the decoration with the maker's name and place of work all have parallels at Gouda (cf Humphrey 1969: 20, 19 fig 13c), and some of the bowl-shapes suggest Dutch influence; though certainly the makers' names so far recorded on the pipes are English. (The only other places in England where pipes with ornately-decorated stems are known to have been made are Chester in the earlier (Webster and Barton 1957: 19-28) and mid- (I. Walker 1971c: 70, 69 fig 11, 111 and 114-5, 108 fig 40 left) C18, and possibly Oxford (Oswald 1970b: 226, 244, pl 213) - for a discussion of decorated stems see I. Walker loc. cit.). According to Sheppard (1902: 4-5, 1912 ed), there is evidence that Warton was a miserly and unsociable character; if so, the sudden buying of quantities of Dutch and ornately-decorated Nottingham pipes in late April and May 1714 suggests Warton may have been entertaining important guests - possibly other entries in his account book would prove this. (Attempts to trace this book in the Kingston upon Hull Archives, the City Museum, the Library, and the East Riding Record Office have been unsuccessful). There are also entries indicating that Warton paid 1/2d a dozen for "firing" pipes - this referred to the refiring of used pipes, which burnt them clean again, though at some cost to their smoking qualities (Sheppard's alternative suggestion, that Warton made his own pipes and sent them out for firing, is hardly likely). Nicholas Blundell of Little Crosby, near Liverpool, twice recorded in his diary that he refired pipes, noting in 1719 that he "Burned half a Groce of Pipes" (Tyrer and Bagley (eds) 1970: 277) and in 1722 that he "Burned above one Groce of pipes in the Washhous Grate which are fully as many as I could conveniently" (Tyrer and Bagley (eds) 1972: 85). From the latter it is not certain whether he merely placed the pipes in the fireplace or not; special iron racks to hold pipes during refiring are known (e.g. J.S. Lindsay 1927: 69-70, figs 392-5, 1964 ed; Scott and Scott 1966: 44-6; there are examples at Blaise Castle Folk Museum, Bristol). George Sturt, recalling his boyhood - about the 1870s - remembered that after wheels had been shoed at his grandfather's wheelwright's shop at Farnham in Surrey the strake chimney (the oven used to heat the strakes before putting them on the wheel) was used to burn Churchwarden pipes

> After a shoeing, when the wood cinders glowed almost too dazzling to look at, a rack of churchwarden pipes was brought from my grandfather's house adjoining the yard and set down in the heat of the fire. When it was lifted out again the pipes were almost transparent with great heat; but cooling, they looked like new ones, chalk-white, with the last speck of nicotine burned from the bowl, the last stain of red sealing-wax from the mouthpiece. That was a fascinating sight for a boy.

However, George Sturt notes that by the time he took over the family business in 1884 Churchwarden pipes had gone out of fashion (Sturt 1923: 153, 1963 ed). In the middle of last century poor people cleaned their pipes by putting the bowl in a fire, and there was a business in collecting used pipes from the lounge bars of public houses, refiring them, and selling them in the public bars (Fairholt 1859: 179 n.; cf M. Phillips, 1918: 166).

Latimer (1893: 52-3, 214, 217) notes several purchases of pipes by the Bristol Council in the C18, but never in enough detail for precise costs to be estimated. For a royal visit in 1738 the Council spent 12s for approximately 800 pipes, which suggests a price in the region of 2s3d a gross or 2-1/4d a dozen. Twice in 1704 the entry occurs "a gross of pipes and for burning pipes 2s": assuming the process of burning old pipes cost ca.2d a dozen as it cost Warton a few years later one may conclude that a gross of pipes in Bristol cost something under 2s, depending on how many pipes were being burnt. If we estimate ca.1s9d for a gross this suggests a dozen could be sold for ca.1-3/4d, a price which included enough profit for the maker to live on. Doubtless these were good-quality pipes; those shipped from Bristol as part of the West Africa trade were very probably not, if a price for such pipes of 1s a gross - 1d a dozen - noted in 1725 (Donnan (ed) 1931: 326) is any indication. Equally cheap pipes, again only about half the price of those known for the home market about the same time, occur for pipes shipped to West Africa from London: pipes specifically listed for the use en voyage of slaves cost 1s a gross or 1d a dozen in 1691 (Donnan (ed) 1931: 372, cf 282 for reference to slaves being allowed to smoke en voyage). In 1714/5 pipes again specifically for the slaves' use cost 8d a gross or ca.3/4d a dozen while pipes on the same ship included in the general provisions and either for the crew or for trading cost 1s4d a gross of ca.1-1/4d a dozen (Donnan (ed) 1931: 181, 179).

Scattered references to prices of pipes in the C17 are known. The London guild, hearing of the impending tax on tobacco pipes referred to above, submitted a petition to Parliament (apparently in 1695) requesting the tax not be levied. The selling price the petition quotes is 1s6d-1s10d a gross, of which 2d or 3d was the greatest profit made. The price per dozen would thus be 1-1/2d to just over 1-3/4d, and the profit on a dozen 1/4d at most. The petition also notes that pipemakers, in order to obtain immediate necessities, had to sell their products at 3d or 4d less than prime cost, and says that if this can happen in cities, where there is a large production of pipes, the situation must be much worse in the country where production is so much less (quoted in Robinson and Spence 1937: 205-6). As already noted, however, the tax was levied for two and a quarter years, and probably did cause considerable hardship for pipemakers, for the levy was 1s per gross on ordinary pipes and 1s6d on polished pipes. Assuming the selling price of 1s6d-1s10d a gross noted above is for the ordinary pipes, the addition of 1s duty increased the price by over a half.

Noting the amount and value of pipes shipped from London between Michaelmas and Christmas 1698 to such diverse places as France, Spain, Barbados, and Virginia, Oswald (1960a: 48 - London is the port meant, cf 1959a: 59-60) gives figures which show these pipes were valued at 1s a gross or fractionally less, giving a price of ca.1d a dozen. This price is rather less than the 1-1/4d-1-3/4d a dozen for ordinary-quality pipes in 1695 noted above, but it is in keeping with prices for London and Bristol pipes used in the slave trade in the first quarter of the C18. The possibility that inferior-quality pipes were sent abroad must be kept in mind, but as noted below 1684 prices for pipes sold to the Hudson's Bay Company by a London maker cost 2d a dozen.

Houghton (1693/4: 205) gives the price of "ordinary pipes" as 1s6d the gross and polished ones at 2s or 3s a gross. These give prices per dozen of 1-1/2d and 2d-3d respectively. Houghton does not give any indication of a pipemaker's earnings, but does say six workers could make 60 gross pipes in a week. Assuming six workers represented an average establishment in Houghton's experience, 60 gross pipes sold at ca.2s a gross (assuming a mixed production of ordinary and polished pipes) would bring in, if sold in a week, £6. Assuming - arbitrarily - that half of this was profit the six workers might average 10s each. However, trimmers would, on McDougall's and Liverpool evidence, probably be paid about one-third the wage of moulders and be in a ratio to them of approximately one to two (though Liverpool - see Chandler 1957: 340 and Oswald 1970b: 228 n.6 - did indicate a ratio of one to one). At a guess the six workers noted by Houghton might comprise a master, two journeymen, two apprentices, and the master's wife. Apprentices might or might not receive pay (Lipson 1915: 309, 1959 ed), but if it is assumed that they were paid the same as the master's wife, then a combination of employees such as that suggested might be paid in a proportion of 3X (the master) to 2-by-2X (the two journeymen) to 3-by-X (the two apprentices and the master's wife) per week. Thus X would be equal 6s, which would be the wage of the apprentices and master's wife, while the journeymen would each receive 12s and the master 18s.

That six workers may not be unacceptably far off the mark as representing an average pipemaking establishment of this time receives indirect support from the 1696 list of London pipemakers' guild members who swore allegiance to William III and which has already been noted in 3: I. The list comprises 44 masters and 229 journeymen, suggesting an average ratio of former to latter of approximately one to five. An average-sized London pipemaking business of the period may thus have comprised a master and five journeymen, plus however many apprentices the master was permitted or bothered to take - the last in many cases perhaps not more than one or two when the skilled labour of journeymen was available. Six was also the figure noted in an advertisement of a pipemaking business for sale in 1757 at Great Yarmouth (quoted in Oswald 1970b: 239).

In the 1660s and 1670s in Bristol the Tilers and Plasterers' Guild and the Carpenters' Guild both set daily wage rates which gave a junior apprentice 8s for a six-day week, a senior apprentice and a journeyman 10s a week, and a master 12s a week (Latimer 1900: 346-7; F.H. Rogers 1949: 107). This suggests that there was less difference between wage rates, and also that the base rate was higher and the top rate lower, than in the calculations given above. If this Bristol evidence is applied to Houghton's "factory" and it is assumed that at the latter the staff comprised the master, two journeymen, one senior apprentice, one junior apprentice, and the master's wife, then a £3 profit when apportioned out gives the Bristol wages to the three classes (again assuming the master's wife earned the same as the junior apprentice) within a halfpenny. The Bristol wages are in proportion to each other in the ratio of 4 to 5 to 6: the master earns 6X, the journeymen and senior apprentice earn 3-by-5X, and the junior apprentice and master's wife earn 2-by-4X, giving a total of 29X to divide into £3 and making X a fraction over 2s. Thus the master earns ca.12s a week, the journeymen and senior apprentice ca.10s each, and the junior apprentice and master's wife ca.8s; and on a six-day week these figures give daily wages of 2s, 1s8d, and 1s4d respectively. Admittedly the £3 profit suggested from Houghton's evidence was an arbitrary figure, but the foregoing calculations suggest it may be an accurate guess.

In 1684 the Hudson's Bay Company bought 44 gross pipes from an Edward Jeffries for £2 18 8 (HBRS vol IX p.233; I owe this reference to A. Woodward, Amon Carter Museum of Western Art, Fort Worth, Texas - Atkinson and Oswald (1969: 212) note Jeffries working in London and taking an apprentice in 1699). This gives a price per dozen of 1-1/3d. The same volume of the HBRS (p.98) notes the purchase from Jeffries of 20 gross pipes plus four boxes on 20 April 1683 for £1 12 4, which indicates pipemakers supplied boxes in the later C17 much the same as the Angel Hotel, Abergavenny, ledger entries indicate occurred in the C19 (see above). In this particular case it is not possible to separate the cost of the pipes themselves from that of the boxes, but assuming the same cost as that of the order a year later, 1-1/3d, the 20 gross pipes would have cost £1 6 8 with the boxes costing 5s8d, or 1s5d each.

In 1681 Bristol corporation entertained the Marquis of Worcester and his two sons and expenses for the occasion included 1s10d for a gross of pipes (Latimer 1900: 405), giving a price - which one may assume was for the best quality - of slightly over 1-3/4d a dozen.

Another inventory of a Lincolnshire pipemaker's assets, this time of a Boston maker, James Harford, who died in 1676, includes, in addition to five tons of clay valued at £5, two lots of five gross pipes each valued at 5s - 1d a dozen (P.K. Wells, paper at Spring Conference of the Society for Post-Medieval Archaeology, Lincoln, March 1969; P.K. Wells 1972: 13); and a third inventory of a Lincolnshire maker's assets, that of John Fox of Spalding who died in 1671, included 50 gross pipes valued at £2 10 0 (P.K. Wells 1972: 14), figures which also give a cost of 1d a dozen.

Apperson (1914: 229, 64) gives costs for pipes taken from two sources in the C17. In 1671 the churchwardens' accounts for St Alphage, London Wall, note "For pipes and Tobacco in the Vestry 2s" and "For a gross of pipes at several times 2s" which appear to indicte that a gross of pipes in London at that time was costing 2s or less - 2d or less a dozen. In 1640 an Exeter citizen paid 1s5d for six dozen pipes, which gives a price of just under 3d a dozen.

In March 1651 the Duke of Bedford ordered a gross of the famous Gauntlett pipes from Hugh Gauntlett of Amesbury (see 3: I) - "you know the shape I like" - for the quite extraordinary sum of 18s6d, of 1s6-1/2d a dozen (Atkinson 1965c: 95 n.11, rev ed 1969b, citing Life of a Noble Household, accounts for Woburn Abbey and the Duke's London house). The following year, according to Atkinson, the price had gone down: how much is unfortunately not stated, but the private purse accounts for the Marquis of Hertford for the year Michaelmas (29 September) 1641-Michaelmas 1642 indicate almost exactly the same price for Gauntlett pipes as that paid by the Duke of Bedford: 36s6d for two gross, or 1s6-1/4d a dozen (Morgan 1945: 20). Substantially higher than usual costs are also given for other purchases of pipes for the Marquis. A subsequent purchase to that noted above was of two gross for 36s (Morgan 1945: 26), or 1s6d a dozen - from the price this too may have been for Gauntlett pipes, though if so it is not stated in the accounts. Four-and-a-half gross London pipes cost 31s6d, giving a price of 7d a dozen. On two separate occasions a single gross from an unspecified source is recorded costing 7s, again giving a price per dozen of 7d; and on another two occasions three gross from an unspecified source cost 21s6d, giving a price per dozen of just under 7-1/4d. (One of these three-gross purchases was for the Marquis's stay at York, where he went in April 1642.) Another entry records that "a pound of Tobacco Three dozen of pipes and a box for my honorable Ladie" cost 20s. (Whether the honourable lady actually smoked is regretably unclear, but other purchases by her of "a little Tobacco box" and a lb of tobacco suggests she did.) Entries of tobcco purchases indicate a lb of tobacco consistently cost 16s, but boxes sometimes noted with purchases of tobacco and pipes vary in price so that the cost of the pipes themselves cannot be calculated (Morgan 1945: passim).

These prices are so high, comparatively speaking, that it is tempting to conclude carriage must have been added to the cost. This would appear particularly reasonable in the case of the Gauntlett pipes, which were made at Amesbury in Wiltshire and must have been additionally expensive to distribute. However, at least one of the entries in the Marquis of Hertford's account suggests carriage was not included in the price, for the entry also notes a payment of the not inconsiderable sum for the time of 6d to the porter bringing the pipes. Gauntlett pipes must have been already famous by 1640 if marquises and dukes were ordering them in the 1640s and 1650s; a maker patronized if not by royalty then at least by high nobility probably was able to charge exclusive prices for his products. That 7d a dozen for superior-quality London pipes, as noted in the Hertford accounts, is not prohibitively high is suggested by prices suggested in 1619 by the Westminster guild on its incorporation and discussed below: only unusually high quality products were to cost more than 6d a dozen. London-made pipes suitable for the nobility might thus be priced as high as 7d; if so, the exclusiveness of Gauntlett products can be appreciated when one considers they cost a good two-and-a-half times the London pipes, which on other evidence can be shown to cost more than twice the 2d-3d charged for ordinary-quality pipes about this time.

Estate inventories of 1633 and 1622 for respectively a mercer and a merchant living on the Cornwall side of the Tamar from Plymouth, at Millbrook and Saltash, include in the case of the former, 1-1/2 gross pipes valued at 1s6d - which is 1d a dozen - and in the case of the latter "one grosse of tobacco pipes 1s6d" - 1-1/2d a dozen (Douch 1971: 146). These costs are surprisingly cheap for this early, but this may have been because of the relative nearness of Plymouth to the South Devon ballclay deposits, which may have been used this early even though documentary evidence is at present lacking (cf A. Oswald 1970a: 127 and n.4).

The Tobacco Pipe Makers of Westminster when incorporated in 1619 laid down that the price of best-quality pipes was to be "twoe at the least for a penny"; only pipes of "extraordinary greatness or unusuall curiosity of workmanshipp" were to cost more (PRO C.66/2206, Patent Rolls 17 Jas. I, 5 Oct, No 6). Thus a dozen best-quality pipes were to cost no more than 6d unless of exceptional size or workmanship, which suggests that ordinary quality pipes probably cost 2d-3d a dozen. Presumably the price given is retail in the sense that most pipemakers would deal directly with customers; however, as their charter gave them a monopoly in England and Wales one assumes that where pipes were not sold to the customer by the maker - which must have been everywhere except for the immediate area of the makers' premises or their rounds - the price would be higher. As the whole monopoly was unrealistic it may be that in practice few pipes made by guild members were ever sold in the provinces. (As Rogers notes, dealing with the Bristol guilds (1949: passim), some at least of the C17 royal monopolists came to agreements with provincial manufacturers and allowed them, in return for payment and having the quality of their produce checked, to manufacture a limited amount of their product for local consumption - Bristol soapmakers were allowed to continue in this way, for example, though in fact the London monopoly largely ruined that Bristol guild).

In 1605 the estate inventory of a prominent Helston shopkeeper includes "8 dozen tobacco pypes 2s" (Douch 1971: 146), which indicates a cost of 3d a dozen, a figure relatively high by later prices but in agreement with evidence that early clay pipes were relatively expensive items. The entry is also interesting in showing that pipes were available, and probably made, this early in Cornwall.

The earliest reference to the price of pipes so far found is 3d a gross given in 1599 at Barnstaple (quoted in E. Watkins 1966: 217 from a label in an exhibition case in the Barnstaple Atheneum, also seen by this writer). This appears to be an agreed price for which a local maker would supply pipes at the rate of two gross a week (though presumably this figure does not represent his entire weekly output even if he were hand-making his pipes and not mould-making them.) Thus a dozen pipes cost 3/4d. However, Barnstaple had a neighbouring deposit of ballclay (see 2: IX) which this maker must certainly have used, and so his price probably reflects very cheap clay.

TABULATED RESUME OF PIPE-PRICE EVIDENCE

Barnstaple 1599	3/4d a dozen
Helston 1605	3d a dozen
London 1619	6d a dozen - best quality prob. 2d-3d a dozen - ordinary
Saltash (nr Plymouth) 1622	1-1/2d a dozen
Millbrook (nr Plymouth) 1633	1d a dozen
Exeter 1640	3d a dozen
Marquis of Hertford's private accounts, 1641-1642	(7d a dozen for London pipes (1s6-1/4d a dozen for Gauntlett pipes
Duke of Bedford's accounts at Woburn Abbey and his London house, 1651	1s6-1/2d a dozen for Gauntlett pipes
London 1671	ca.2d a dozen
Lincolnshire 1671	1d a dozen

Bristol 1681	ca.1-3/4d a dozen	
bought by Hudson's Bay Company, London 1684	2d a dozen	
London 1691	1d a dozen - for use of slaves being shipped to North America from Africa	
Houghton 1693/4	1-1/2d a dozen - ordinary 2d-3d a dozen - polished	
London 1695	1-1/2d-1-3/4d a dozen - ordinary	
London 1698	1d a dozen - pipes being exported to France, Spain, Barbadoes, and Virginia	
Bristol 1704	1-3/4d a dozen	
Beverley 1709-14	1-1/2d-2d a dozen - cheap English	) prices
	2-1/4d-3-1/4d a dozen - best English	) exclude
	2-3/4d a dozen - Nottingham pipes	) carriage
	2-1/4d-4d a dozen - Dutch	) charges
London 1714	(ca.1-1/4 a dozen - for use on board (slavers presum. for crew (ca.3/4d a dozen - for use of slaves (being shipped to North America (from Africa	
Lincolnshire 1728	prob. 1-1/4d a dozen	
Bristol 1725	1d a dozen - for trading with West Africa	
Bristol 1738	ca.2-1/4d a dozen prob. wholesale	
Liverpool 1796	prob. ca.2d a dozen prob. wholesale	
Bristol 1799	3d-5d a dozen "long" pipes, glazed	) a common advertisement
	2-1/2d-4-1/2d a dozen ditto, unglazed	) for four Bristol
	ca.1-3/4d a dozen "common long" pipes	) firms
	1d-ca.1-1/4d a dozen "short" pipes for various export markets	)
London ca.1799	ca.2-1/2d a dozen (?)	

London 1809	(1) 2-1/2d a dozen) (2) 3-1/2d-4d a dozen)	(1) was price before journeymen struck for higher wages, (2) was price after higher wages obtained
Bristol 1812	1-1/2d a dozen - type name beginning "Ne...", rest obscured) ca.1-1/4d a dozen - "Hunters")	a common advertisement for six Bristol firms
London, post-1809 strike to 1818	3-1/2d-4d a dozen	
bought by the North-West Company, London 1820	ca. 3-1/4d a dozen	
Poole 1828	2-1/2d a dozen - exported to Newfoundland	
Knockcroghery, Co. Roscommon, some years before 1832	2-1/2d a dozen wholesale - small and poor quality	
ditto 1832	1d a dozen wholesale - ditto	
Edinburgh 1840	3-1/2d a dozen - best quality 21-ins long	
Glasgow prob. ca.mid-C19	(2-1/2d a dozen - best quality 16-ins long (3-1/2d a dozen - best quality 21-ins long	
London 1850s - *Fairholt*	6s a dozen retail - French	
Mayhew	6s a dozen retail - porcelain: English? German?	
Fairholt	(ca.1-1/4d a dozen wholesale) (3d a dozen retail)	cutties
Apperson	6s a dozen prob. retail - Milo's and Inderwick's clays	
Penn	6s a dozen retail - "moulded with figures"	
Broseley 1850s-1870s	2-1/2d a dozen "best Broseley pipes" and "B Smoke Rooms" (latter 20-ins stems) 4-3/4d a dozen "Best P. Tipt" 6d a dozen "B s Pips"	

Bristol 1860s	2-3/4d-3-1/2d a dozen "Straws Glazed Pipes" and "Broseleys" - both types 19-ins long
Scotland ca.1861	2d a dozen (presumably cutties)
Lincolnshire second half C19	(2d-3d each Churchwardens retail (1d for three or four cutties retail
London 1875	2d-3d a dozen retail - short and medium-length straws 4-1/2d a dozen retail - 16-ins straws 6-1/2d a dozen retail - "Fancy Clay Pipes, With Glass Eyes"
London 1879	ca.1-3/4d 2d a dozen - cheapest varieties, incl. cutties 2-1/2d-3-1/2d a dozen - decorated and bent varieties 2-3/4d-5-1/2d a dozen - long-stemmed varieties, 8-18 ins
Bristol 1892	1-1/2d a dozen wholesale - Irish, Straws (long-stemmed pipes), and meerschaum patterns 1d a dozen wholesale - assorted cutties
Bristol ca.1900	local rhyme current in the pipemaking area of St Jude's referred to publicans selling "farthing pipes", indicating a retail price (undoubtedly for the cheapest types) of 3d a dozen
Scotland 1900	ca.3/4d a dozen (wholesale) for average types up to 1-3/4d a dozen for other types, including 21- and 22-ins pipes various additional costs depending on certain features and type of clay used
Leicester ca.1900	2s6d a dozen retail) tripartite 6-1/2d a dozen wholesale) moulded 3/4d a dozen wholesale - cutties (to publicans who gave them free to customers)

Rainford ca.1900	3d a dozen retail
London? pre-1914	2d a dozen retail 1d-6d a dozen wholesale depending on type of pipe
Nantgarw pre-1920	2-1/2d-4-1/2d a dozen wholesale
Glasgow ca.1920	6d a dozen retail
Dundee early 1930s	1s a dozen retail - plain 2s a dozen retail - "glossy"
Manchester 1930s	2s a dozen retail - cheapest
Cheshire ca.1940	2s-3s a dozen retail - cutties up to 9s a dozen retail - Churchwardens
Broseley pipe bought in Leicester ca.1960	4s6d a dozen retail
Manchester pipes sold in Bath 1968 SHOP I	12s a dozen retail - cutties 15s a dozen retail) 21s a dozen retail) various sizes of 27s a dozen retail) Churchwardens
SHOP II	27s a dozen retail - cutties 60s a dozen retail - long Churchwardens
Cutties of unknown origin sold in Bath SHOP III	10s a dozen retail

(In 1972 Pollock's were selling their cheapest clay for 10p (2s in pre-decimal currency) each, i.e. 24s a dozen, while their range of varnished clays with vulcanite stems (examples in FIG 108) cost from 90p (18s) to £2.20 (44s) each (B. Rogers 1973: 26).

No attempt has been made to compare these prices to those of briers over the past century or so, but a brief survey of prices in 1969 showed a range from 10s6d for manufacturers' rejects in a Bath shop to £10 for certain Alfred Dunhill pipes in Edinburgh and London. At both extremes these prices were for pipes of normal shape and size. Astley's of Jermyn Street, London, had pipes priced considerably higher - one at £50 was noted; and another, costing £250, bore (as well it might) the label "best briar ever." (Astley's also sell meerschaums: one was noted priced at £83.) The most frequently-listed prices for briers, however, appeared to lie between ca.£1 10s and ca.£3. An undated catalogue of the Kaywoodie pipe firm of New York (Anonymous n.d. [7]: back cover) obtained by this writer in the earlier 1960s listed the Kaywoodie Presentation Collection of 28 matched grain Kaywoodie briers, a carved head brier, a calabash, and a meerschaum together with a walnut cabinet with tobacco humidor and a brass plate engraved with the recipient's name for $2,500. Over 500,000 brier blocks had to be sorted to provide the brier for one set of these pipes, and only 12 sets could be produced in a year. The ultimate in expense for a single pipe, according to that compendium of esoterica The Guinness Book of Records (N. and R. McWhirter (eds) 1972 ed: 154), is $2,500 for a Charatan of London straight-grain brier called Summa cum Laude and available in limited quantities in New York, while the Charatan set of seven - one for each day of the week - known as "The Crown Achievement" costs $10,000 (Dunn 1973: 33).

Fairholt (1859: 198-9) noted that he was writing, the recently-introduced brier pipes were "expensive, the bowls costing three shillings each." This rather implies the stems came, and were charged for, separately. The exclusive tobacco firm of Fribourg and Treyer, patronized by royalty, was selling "Briarwood Pipes" in 1859 (G. Evans 1921: 37) - not, as Mackenzie (1957: 259) says, 1879 - at 7s each, presumably including stems, or 11s with case. Mackenzie (loc. cit.) suggests the pipes in cases may have had amber stems but that the others would have had horn stems, but there is no evidence to confirm this. A. Dunhill (1924: 246-7) notes that horn stems were locally manufactured in the Saint-Claude area from the beginning of brier-pipe production there in the mid-1850s (see 1: VII(h)), there being a traditional horn-working industry in the Jura, and that ivory and amber were used to make stems for deluxe pipes. The stems of the brier pipes from the Bertrand shipwreck on the Missouri in Nebraska in 1865, which date to within 10 years of the introduction of brier pipes, were of wood (see 1: VII(h)).

If Conan Doyle is to be trusted, an inexpensive brier pipe with a stem probably of fake amber cost ca.7s6d towards the end of the C19. In "The Yellow Face", written in 1893, Holmes, after commenting on the prevalence of fake amber for stems - "Why, it is quite a branch of trade, the putting of sham flies into the sham amber" - judges a well-used brier conveniently left by a visitor to have originally cost 7s6d. He goes on to opine the owner must be well-to-do, and when Watson asks Holmes if he thinks a man must be well-to-do because he smokes a "seven-shilling pipe", Holmes points out the owner smokes Grosvenor mixture at 8d an oz when he could get an excellent smoke from tobacco half that price. The implication here is that a 7s6d pipe is not an expensive one even if it had an amber - or imitation amber! - stem. (Michael Harrison in his In The Footsteps of Sherlock Holmes (1958: 95, 1971 ed) notes that ca.1880 briers with an amber stem cost 35s, best-quality plain briers 12s6d and upwards, cherrywoods 1d-2d, and clays 1/4d-3/4d, while "finest quality, guaranteed to colour" meerschaums were 12s-35s.)

The Hovenden catalogue of 1875 referred to above creates a major problem here. It lists "first quality" briers with horn stems at 2s-8s a dozen depending on size - small, medium, or large - and type; "second quality" pipes could cost as little as 1s2d a dozen. Name brand briers with horn stems are listed at 10s to £1 a dozen, with ivory stems at 11s to important chance £1 4s, and with amber stems 18s to £1 16s a dozen (Anonymous 1875: 108-9). These prices could conceivably have been wholesale, but if that were the case the listed prices for clay pipes, which do fit the known range for retail prices (see above) would become far too high. At a guess, this writer would hazard that the "Per doz." heading above the prices is a misprint for "each", the heading used in the catalogue when giving prices for meerschaum pipes. Even at that, 1s2d for a small "second quality" brier seems extraordinarily cheap. (The firm's meerschaum pipes cost between 3s and £1 each depending on size and whether they were carved, though assorted patterns of plain meerschaums could be bought for as low as 12s-18s a dozen; immitation meerschaum pipes were priced from 2s-5s a dozen. The true meerschaums were normally sold without stems; immitation meerschaums with stem and chain-attachment between stem and bowl were listed at 4s6d per dozen for "common" pipes, 8s per dozen for "large plain bowls", and £1 4s per dozen for "Zouaves' heads, assorted" (illustrated). What was called an Abyssinian bowl - also illustrated - cost 2s a dozen in immitation meerschaum and 3-1/2d per dozen (3s6d a gross) made in pipeclay, giving an idea of relative cost, though the latter must have been made in Britain whereas the former would probably have been imported (prices and illustrations in Anonymous 1875: 109-10).)

SECTION II:
WAGES

The extremely scattered evidence can give only the vaguest idea of price and wage trends, for both prices and wages must have varied greatly with area.

As noted in the preceding section, McDougall's ca.1948 were paying a moulder ca.3s3d a gross and a trimmer ca.1s3d a gross. Taking the figure of three gross as the average daily production for pipes (see preceding section), McDougall's moulders ca.1948 would have been earning ca.9s9d a day or ca.£2 13 7-1/2 for a five-and-a-half-day week, and their trimmers ca.3s9d a day or ca.£1 0 7-1/2 a week. Latterly McDougall's used a makeshift system of payment which was a compromise between piece- and time-rate, but had they followed the old system, they estimated they would have been paying a moulder in 1967 ca.9s a gross and a trimmer ca.3s a gross. At these rates a moulder would theorectically have been earning ca.£6 15s for a five-day week and a trimmer ca.£2 5s.

As also noted in the preceding section, Southorn's of Broseley were paying their workers 2s6d an hour ca.1958. As they were women workers they were probably paid less than men would have had to be paid and in any case they were only part time workers, but assuming a 47-1/2-hour five-day week Southorn's workers would theoretically have earned £5 18 9 a week at that date.

The 1900 price-list for Scottish pipes (Anonymous 1900) noted in the preceding section gives some hints on earnings at that time. The prices of the pipes given are in accord with what other evidence there is for wholesale prices about this time, and therefore presumably represent production costs plus company profit. A manuscript addition following the last page - p.63 of the booklet - and numbered p.64 is a fragment of a letter dealing with wages paid a trimmer for a "T.W. Cutty" pipe. The letter, dated 29 April 1903, is from 32 Kerr St, Calton, Glasgow, and addressed to a Mr William Christie. 32 Kerr St was the address at this time of John Waldie and Co and also of James Reid and Co; the letter is probably from Waldie's as they appear to have been one of the three major Glasgow pipemakers at this time, to judge by prefatory notes in the price booklet. The William Christie to whom the letter was sent must have been either the Glasgow Christie or his son in Edinburgh - both were called William. As the book is now in the Huntly House Museum in Edinburgh along with Christie's reconstructed workshop it is likely it was addressed to the Edinburgh Christie. The letter begins "Dear Sir, In answer to yours of 27th inst, we pay for finishing T W Cutty 1-3/4 [sic] per Gross, and expect this is the correct price, but...." at which point the letter has been torn.

As noted in the preceding section, McDougall's in earlier times paid finishers between one-third and a half what they paid moulders, which suggests that here a moulder would have got ca.4-1/4d a gross for the T.W. Cutty, making a direct labour cost of ca.6d a gross. The 1900 price-list gives the price per gross of Waldie's T.W. Cutties as 8-1/4d, from which one can deduce the firm's profit would have been ca.2-1/4d minus fractions of the costs of the clay, of the fuel for stoving and firing, and of materials for packing and shipping; labour for the preparation of the potting (putting the unfired pipes in the saggars), firing, packing, and local distribution (see p.152 above); and of the wages of supervisory and clerical staff. Such a profit must have been minimal, perhaps 1d a gross, though for the more expensive pipes - those priced in 1900 at ca.11d a gross and higher - it would no doubt have been somewhat more. One penny a gross clear profit would mean a profit of only 3d a day on one moulder's output, or 1s6d a week; with 100 moulders - and even as late as 1914 McDougall's, and probably White's, must have had about this number (see p.342 above), the clear profit on this calculation (excluding capital expenses, building maintenance, taxes, and the like) would have been only £7 10s. True, this is fifteen times the wage calculated below for the moulder and four to five times the wage of well-to-do Glasgow artisans at this time (see below), but it hardly seems remunerative enough to classify pipemaking as a prosperous business, even if with sales of pipes giving a greater profit than 1d a gross the weekly clear profit could be increased to ca.£10. Of course, by 1900 the heyday of the Glasgow pipe-industry was over - the real days of affluence (for the owners - the workmen can never have been other than at poverty level or below) in the industry must have been the third quarter of the C19, and as noted in the preceding section Glasgow pipes were being sold in mid-century for double the price they were in 1900, indicating a vast drop in profitability during the second half of the C19 (probably the last quarter). One would like very much to have detailed company records for the second half of the C19, but none appear to have survived. McDougall's when they closed in 1967, had few early papers, their premises having suffered two fires this century (Walker and Walker 1969: 132), while all White's material, including files, was destroyed when their 130 year old premises was taken over in 1955 by a footwear firm (Glendale Footwear Co Ltd *in litt.* 12 January 1968).

A printed note in the preface to the price list quotes a letter from McDougall's to Davidson's (signed by McDougall's, Waldie's, and White's) dated February 1895 dealing with payments when a worker had to change from one mould to another during the work-week: "when a man has more than one setting within one week he is entitled to a 6d. for said extra setting, and also 6d. for each additional setting he may have to make within said week". This clearly reflects the piece-rate method of payment, for a worker changing moulds would lose time doing so and also lose his production rhythm if he had to make different-sized rolls necessitating different amounts of clay, a different number of rubs to produce the roll, and a different length of wire. As noted in Section I above, the workers had some say in fixing pipe prices, doubtless because their wages were a proportion of the selling price. Thus the dispute at McDougall's was settled with agreements that no new pipes were to be sold at less than 8-1/2d a gross, though present 8d a gross pipes were to remain at that price.

Again assuming an average production of three gross a day, on the above figures, if the moulder of Waldie's T.W. Cutties did receive ca.4-1/4d a gross, he would have earned ca.1s0-3/4d a day, or ca.6s4-1/2d a week.

Various extras such as the 6d for any change of mould and presumably a proportion of the increased prices charged when plugs and venting needles were added, or when different types of clay were used, or when some modifications were made to the moulding process or the pipe shape as noted in the preceding section are unlikely to have added materially to the weekly wage, for as indicated above the reason for their payment was to compensate for loss of production, and therefore lower wages, caused by these changes lowering gross output. There can be no doubt these were rock-bottom wages and far below poverty level. Butt (1971: 67, 82, 85) notes that surveys made in 1901-03 among those using Glasgow lodging-houses suggest unskilled labour could earn on the average in good times 22s-25s a week, though taking irregular employment and broken time into account the figure was probably 16s-18s in reality. Carters' and vanmen's earnings ranged from 16s to 30s a week, averaging 21s2d; labourers' wages ranged from 16s to 26s and averaged 19s; and porters earned 15s-25s, averaging 17s9d. By contrast, well-to-do artisans were earning 30s-40s in secure employment. It is clear therefore that the 6s6d or less a week calculated as a Glasgow pipemaker's wage in 1900 can only have been a contribution towards a weekly accumulation arrived at by the united earnings of several of a family; even so, however, a family the man of which was earning less than 6s a week cannot have totalled more than ca.15s. By ca.1900 the Glasgow industry was in decline, and as noted in the preceding section Glasgow pipes being sold ca.1850 were double the price they were in 1900. While it is unlikely this indicates pipemakers' wages ca.1850 were double that of 1900, it does seem probable their wages were higher than in 1900, perhaps 9s-10s a week, though it is unlikely even this represented anything above poverty level.

As is discussed later (p. 440 and 443-4), a number of inventories of the estates of deceased pipemakers are known from various parts of the country for the later C17 and earlier C18, but unfortunately only one has so far been noted for later times; and even that as listed gives only the total of the personal estate. William Cock of Truro, who is first noted in 1850 when a son, also William, was baptized, left personal estate valued at £56 13 3 in 1881; a son Alfred continued the family business while William's widow Jane set up her own business nearby on the same street, "where she carries on pipemaking in all its branches, and hopes for a continuance of the support accorded to her late husband" (Douch 1971: 153). Some sort of family dispute is hinted at here, but it is difficult to judge William Cock's status from his estate value without seeing what his actual possessions were - it is certain, however, that at this late date there must have been a great many pipemakers who had very much less estate than Cock had.

As noted in Section I above, the journal of a Lincolnshire pipemaker, George Spencer Watkinson, in the second half of last century (Hallgarth 1969: 34) gives piece-work rates of pay for journeymen. These were 1s6d a gross for 24-ins pipes, 1s a gross for 18-ins pipes, 9d a gross for 10-ins pipes, and 7-1/2d a gross for 4-1/2-ins pipes. The girls trimming the pipes received 1d-3d a gross depending on the size of the pipe. The author of the journal notes that good journeymen-workers might earn 20s-24s a week, but at this point he is also talking about journeymen of the period in general, and the piecework rates suggest a journeyman-pipemaker earned rather less than this rate, for taking a daily average production rate of about three gross a day and assuming the 18-ins pipes, which were called "common clays" here, were the most commonly-made pipes, a pipemaker would earn ca.18s in a six-day week.

The apprenticeship indenture of George Marsh to Thomas Bellamy of Lambeth dated 4 April 1864 and binding Marsh for seven years is on display at the "House of Pipes" museum at Bramber in Sussex (seen there by this writer October 1973), and it gives the following rates of pay for Marsh: 5d a gross for making and trimming short pipes and 6d a gross for long pipes during the first half of his apprenticeship, and 6d a gross for all sizes of pipes in the second half. Assuming Marsh turned out to be a successful apprentice, he would have been fully proficient long before his apprenticeship was up and would thus have been producing the standard three gross or so daily, which would have earned him ca.1s6d a day or ca.9s a week. This is the same figure Thomas Hughes of Broseley, apprenticed 1848, would have earned assuming he too had been a successful apprentice (see below): as in Hughes's case, the master did not supply food and drink, Marsh being described as an "outdoor apprentice", presumably indicating he lived with and was clothed and fed by his family. Marsh's indenture had the usual stipulation admonishing him not to lie, sell his master's pipes, do damage, and to warn his master of any danger. The reference to Marsh being expected to do both the moulding and trimming of his pipes is interesting, and no doubt reflects the declining condition of pipemaking at this time, it being no longer economical for his master to employ specialist trimmers. What Marsh would have earned as a journeyman is difficult to say: by 1873, when he would have finished his apprenticeship, the English clay pipe industry was rapidly dying. Assuming he would have been able to get steady work at all in the trade, it seems unlikely he would have been getting very much more than what he had been earning as an apprentice. At a guess, and bearing in mind Booth's poverty-level of 18s for London in the 1890s, Marsh might have earned in the region of 10s-12s a week if he were in regular work.

An 1850 account of the Bristol industry noted briefly above and dating to about the period of greatest prosperity of the industry there in the C19 (see 6: VI) indicates pipemaking in Bristol was carried on mainly by women working in the small factories in the St Jude's area and that they were paid 4d per gross of 180 pipes (anonymous correspondent to the Examiner 17 August 1850). Assuming an average production of 3 gross a day or 18 gross a week, a maker at this rate would earn ca.6s a week; but in his following communication, that for 24 August - these communications took the form of letters describing the Bristol poor (see 6: VIII) - the same correspondent noted that a woman "who had been engaged in the trade from a child and was considered expert at it" had subsequently assured him her earnings never averged more than ca.4s a week and recently had been much less, employment at that particular time being especially scarce and the United States and Canadian markets having been virtually entirely lost within the preceding three or four years.

However, ca.6s a week does in fact seem to have been enough for a family to exist on in St Jude's at that time. The pipemaker described in the account (who appears to have done work contracted out from a firm in the area) was "not strong enough to be very expert in the business" and had only started in the trade on the death of her husband so that she could average only 9 gross a week, which earned her 3s a week when fully employed. Out of this, 5-1/2d went to a man who mixed and prepared the clay for her, but a son contributed 2s a week by picking horsehair and the parish gave her 1s and a loaf of bread towards the upkeep of her youngest child. This gave her a total income of 5s6-1/2d plus a loaf of bread a week, an apparently livable wage for her and her three children, the youngest of whom was a five- or six-year old girl.

Of this sum, 1s6d went on rent (reduced 3d since her husband had died). The remaining 4s0-1/2d went mainly on bread, which was cheap; butter was rarely used. Some potatoes and a little meat, and the luxury of one oz of tea a week, formed the balance of the family's diet. The home was reasonably furnished for its class; the woman was described as "decently-attired". From this, therefore, one must assume that the poverty level in St Jude's in 1850 was much lower than Booth's in London ca.40 years later, and indeed as low as the Oxfordshire Quarter Session figures for 1795 and Eden's for the Wiltshire agricultural village of Seend in 1797 (see pp438-9 below). In 1843 Somerset agricultural labourers existed largely on bread and potatoes with occasionally a little bacon or cheese (Hunt 1967: 286), a diet as poor as that of the widow pipemaker; the weekly wage of a Somerset agricultural labourer is not given, but in neighbouring Wiltshire in 1850 it was 7s3d, plus, however, the equivalent of several shillings' worth of payment in kind but even so about the lowest wage for agricultural workers in the country (Hunt 1967: 280). Unfortunately, this writer does not have any figures for wages in other trades in Bristol in the mid-C19; but in 1889 Wills's tobacco firm were paying 21-year old unskilled male workers 20s a week (the firm in fact paid on a scale depending on age, a 13-1/2-year old earning 4s and a 30-year old, 25s) (Alford 1973: 285). In 1892 a Wiltshire agricultural labourer was earning only 14s9d including payments in kind, and the figure was virtually the same - 15s - in January 1914 (Hunt 1967: 280, 291). The fact that the majority of Bristol pipemakers were women (see also census evidence, 6: VI below) suggests there would have often have been a second and major breadwinner in the family, so that a full family might be earning up to ca.15s or more at the time. Doubtless, however, a number of the women pipemakers were widows trying to support a family. Further, it was certainly the impression of the correspondent (letter of 17 August) that while nearly all the women and many of the children right down to the very young worked, many of the men sat or lounged in the street every day.

On these figures, therefore, the Glasgow figures for 50 years later could be considered accurate enough, as presumably those employed were not normally the sole wage-earner in their family. The fact remains, however, they like their Bristol counterparts must have been at best chronically poor. The wage of ca.£1 paid by Watkinson at Market Rasen in the second half of the C19 certainly seems unduly high by comparison; further research on wages at this period seems indicated. An interesting source of some figures for wages of this period, though clearly they can be taken only as generalized guides, are some of the street ballads. In one, datable from its imprint to the 1879s though earlier versions may exist, 15s a week provided a complete budget for a working man, his wife, and seven children - rent was 1s9d, fuel 1s10-1/2d, tobacco and tea each 8d, with clothes being bought second-hand, a jacket costing 6d and socks 3d. Another street ballad printed probably earlier than 1870, gave the weekly budget of a tradesman and his wife - no children mentioned - as 25s, rent here being 3s2d, and 4s-worth of meat and 6d-worth of tobacco being listed. Also listed was a 3/4d rushlight "every night, to catch the bugs and fleas" (both ballads noted in Neuburg 1973: 197). Despite the obviously general nature of such statements, other evidence collected and noted in this section tends to bear these figures out; and poorly-off though the working man with a wife and seven children existing on 15s may have been, all the evidence suggests pipemakers by this time were appreciably poorer, which reinforces one's suspicions that Watkinson would not have paid ca.£1 to his pipemakers.

In 1848, Thomas Hughes of Broseley was apprenticed to William Southorn of Broseley at the age of 12 for nine years' "full and constant work for the payment of sixpence per gross for rolling and moulding short common pipes, the said payment to be made fortnightly during the said term." The money was to be paid to Hughes's widowed mother, who in return had to supply the boy's food, drink, and other necessities (the indenture is reproduced in Anonymous 1968c). Undoubtedly long before the nine years were up Hughes, assuming he was a successful apprentice, would have been a fully-proficient pipemaker: assuming again that three gross pipes a day was the average production rate for clay pipes then at the wage indicated Hughes would have been earning ca.1s6d a day or ca.9s for a six-day week (i.e. ca.18s a fortnight). What he would have earned as a journeyman pipemaker can again only be guessed at: by 1857, when his apprenticeship would have been over, the brier pipe and the cigarette were just coming in heralding the beginning of the end for the clay pipe industry. With the Southorn firm continuing to produce quality pipes into the C20, however, and with other Broseley firms such as Smitheman also working into the C20, Hughes would probably have had a better chance than most at least to obtain steady employment if he were good enough: at present there is no evidence as to what Southorn's paid their workers, but by the second half of the C19 it cannot have been much more than Hughes had earned as an apprentice - perhaps, as with Marsh (see above), ca.10s-12s a week. In Hughes's indentures the capital offence was considered to be selling his master's pipes to his friends for his own profit: for this he was to be dismissed and his mother to forfeit the very large sum of £50. This perhaps reflects the poverty of the trade, when the tiny profit from each sale had to be jealously guarded in a constant struggle to make ends meet.

On the general level of wages last century and earlier, Wood (1899), studying average wages in towns for the period 1790-1860, showed extremely wide variation among 24 centres (Bristol, unfortunately, is not among them). Further, figures for wages have little meaning unless related to the cost of living. The most comprehensive studies of the cost of living during the later C17, C18, and early C19 (Gilboy 1936; Schumpeter 1938) suggest that, at least in London, there was a slight overall fall in the cost of living between the 1660s and the 1750s, after which it began to rise. From ca.1790 the rise became extremely rapid, with violent fluctuations, and reached its peak ca.1812. Earlier work, using different evidence (Silbering 1923), indicates the same pattern over the last decade of the C18 and the first half of the C19, with only a gradual decline in the cost of living towards the 1830s.

The indices of real wages - that is, the buying power of actual wages in relation to the cost of living - for London and Lancashire (Gilboy 1936) show an almost identical progression, representing an overall slight increase in real wages, until ca.1760. Thereafter, real wages in Lancashire continued to rise; rapidly until ca.1770, then fluctuating around a steady level or rising very slightly overall until the indices cease in the 1790s, at which point there is a suggestion that real wages were dropping. In London on the other hand, real wages dropped steadily in the 1760s and then fluctuated around a steady level until the 1780s, at which point the indices cease. At this point the real-wage index for Lancashire is averaging between 150 and 200 while that for London is averaging between 80 and 100, 100 in both cases being the 1700 level.

Wood's indices for average wages in towns during the first half of the C19 (with 100 equalling the 1840 level) suggest that while in some centres wages did rise and fall in a pattern approximating the rise and fall in the cost of living this was by no means the case everywhere. Sheffield, for example, had an index of 110 for 1800 which rose to 130 in 1805 and 150 in 1810 and stayed over 140 until the later 1820s, falling to 130 in 1831 and 100 in 1840. Coventry's index rose from 100 in 1800 to 165 in 1810, falling to 103 in 1820 and rising to 125 in 1824 before dropping to 105 in 1831. Leeds's index rose and fell in a regular curve similar to Sheffield's, though less pronounced. In Liverpool and Manchester on the other hand, indices fell below 106 in the 1810s and remained at or below 108 until the later 1840s - in Manchester the index was still only 100 in 1860 (Wood 1899: 591 table).

The one reference to wages earned by pipemakers in Liverpool ca.1800 is of limited value. The cost of living was rising rapidly at this time, and to judge by Wood's figures the average wage in Liverpool by the end of the C18 was very rapidly declining in terms of buying power. Whatever standard the wages given may indicate for 1800 they would support an appreciably poorer standard if applied ten, or even five years later - Gilboy's indices for the London cost of living for 1796, 1801, and 1806 are 153, 190, and 201 respectively (Gilboy 1936: 137 table 1). Unfortunately, Wood has Liverpool average wage indices only for 1790 and 1810 in this particular period - 79 and 106 respectively - which suggests that during this period wages were at least following the increasing cost of living; but as noted above after 1810 the Liverpool wage indices fall badly in relation to buying power.

Liverpool, as is noted in 4: II, was perhaps the one pipemaking centre in the country which appears to have had a prospering pipe industry in the later C18. It is quite certain from the depressed state of the Bristol industry in the closing decades of the C18 as recounted by John Frederick Bryant jr (1787: vii-xxxiii) that Bristol pipemakers, far from earning the sort of salaries indicated for Liverpool makers, were in many cases out of work and destitute. In view of the relative decline of Bristol as a port by the end of the C18 it is unlikely that Bristol wages kept anything like pace with the increase in the cost of living from ca.1790, especially as

Liverpool, which had captured Bristol's place as the first outport, was unable to keep its wages in line with the cost of living. London, after increasing its wage index from 86 in 1800 to 109 in 1810, saw its indices slowly drop from 109 in 1816 to 100 in 1831; and by 1860 the index was still only 105 (Wood 1899: 591). It is likely, therefore, that Bristol - like Liverpool and London, not a heavy manufacturing centre - went through a period of lowered real-value wages in the opening decades of the C19. This would be in keeping with Gilboy's conclusions that real wages in the west of England, while not computed for her study, would show a similar decline to those in southern England, a decline which would indeed have started much earlier (Gilboy 1936: 141). It therefore seems safe to say that Bristol pipemakers, even in their days of affluence before the Stamp Act and the American Revolution would have been earning less than the amounts indicated for Liverpool makers in 1796.

However, the status of Bristol pipemakers relative to other tradesmen in Bristol appears to have been distinctly favourable prior to the Stamp Act and the American Revolution. The George Champion who is listed as a pipemaker in Matthews's directories between 1794 and 1800 was apparently, according to Minchinton (ed) 1957: 69, 190-1), the same George Champion who was a shipowner and a Warden of the Society of Merchant Venturers in 1770 and who went bankrupt in 1781; though whether he was connected with pipemaking at this earlier time is uncertain. John Frederick Bryant sr, according to his son John Frederick Bryant jr, employed ten journeypeople and was able to keep his wife and nine children in some comfort prior to the Revolution. Other evidence can be found in Bristol's earliest trade directory, Sketchley's Bristol Directory... of 1775, the year the Revolution started: four of the 11 pipemakers listed - one a John Bryant who was John Frederick Bryant sr - lived in Lewin's Mead in company which included two aldermen and an expensive Quaker school, which indicates the area was fashionable and not yet the slum it was quite early in the C19 (cf Latimer 1893: 421, 438 and 1887: 174, 296; cf also Winstone 1970a: pl 62 for a photograph of Lewin's Mead dated ca.1850).

According to Little (1954: 174, 1967 ed), a Bristol labourer ca.1770 earned 8s-9s a week, which was enough to live on and substantially more than the 4s-5s a week in winter and 6s a week in summer recorded in 1768 for agricultural labourers in some parts of Gloucestershire, though much below the 13s-15s earned by Bristol craftsmen such as masons and plumbers. Bristol sailors in 1768 struck unsuccessfully for a 5s increase to bring their monthly wages to 30s, indicating a weekly wage of 6s3d (Latimer 1893: 384-5). In the much-diminished but apparently still fairly prosperous Bristol pipemaking industry before the Stamp Act and the American Revolution, therefore, one might expect a journeyman pipemaker to have earned something approaching the craftsman rate indicated - perhaps ca.12s a week.

By the early C19, however, things were much different. By 1795, in which year Sir Frederick Eden found rural Gloucestershire was still worse off than Bristol, wages had begun to rise (Little 1954: 175, 1967 ed) - though Latimer (1887: 6-7) says the wages of unskilled labourers in Bristol in 1801 were still ca.8s-9s a week - and by 1810-12 a labourer was earning 13s-15s a week and a craftsman 21s-27s a week (Little 174); but prices had gone up sharply - about double the increase in labourers' wages (Little 174-5) - and these wages are those only of people who had regular employment. In 1795 an advertisement in the local Bath papers offered 3s6d a day and two quarts of ale to skilled miners if they would migrate to Staffordshire, which suggests local north Somerset wages for this class were appreciably lower - perhaps 2s6d-3s a day, or 15s-18s a week (Bluhm 1971: 60). The emphasis here, however, is on skilled miners. The Bristol pipemaking industry, on the other hand, was at an all-time low in the last decade or so of the C18 and the first decade of the C19, and there must have been gross and chronic unemployment among pipemakers there to judge by the numbers who had taken their freedom into the 1780s. (With these wages in mind one realizes the force of the electioneering bribery of Mr Davis, the Tory incumbent who headed the Bristol polls at the October 1812 general election, who offered 7s6d cash, three quartern loaves (then costing ca.1s6d each), and 14 lb of beef from blue-beribboned oxen paraded through the streets among the many inducements, strong-arm and otherwise, to vote for him (Latimer 1887: 52) - these would have totalled more than a week's wages to a labourer, assuming he were lucky enough to have work at the time.

London pipemakers were certainly adversely affected by the increasing cost of living during the period 1790-1820. As already noted (Section I above) they were earning 18s a week in 1816, 9s less than in 1809-15 and only as much as they had been earning ca.1799. With the prospect of their wages being still further lowered to 15s the journeymen pipemakers struck and succeeded in establishing their own factory in February 1819 in Southwark. No details are given as to the success of this venture.

The Gorgon (no 44, 20 March 1819: 349) gives the average wage at this time, taken throughout the year, of a London "mechanic" as not more than 25s a week. As it considers this figure inadequate when related to costs for rent, fuel, and provisions, it is clear that the pipemakers earning only 18s a week and threatened with a 3s reduction were appreciably worse off. Certainly these wages compare unfavourably with those of 25s-30s or more recorded in the earlier 1810s for a variety of London crafts - in 1812, for example, tailors, shoemakers, bookbinders, goldbeaters, printers, bricklayers, coatmakers, hatters, curriers, masons, and whitesmiths were all receiving 30s or more a week, a wage which at that time appears to have been regarded as good money (quoted in E.P. Thompson 1963: 263-4, 1968 ed). Schwartz (1973: 95), discussing East London occupations and incomes in the late C18, notes that "Making allowances for Sundays and public holidays, a bricklayer's labourer would, if fully employed, be earning £30 p.a. in the 1770's and 1780's and about the same amount, in real terms, by 1815". Even allowing for only one-sixth of the year off in unemployment, however, the average weekly wage in the 1770s and 1780s would have been less than 10s, and for most labourers this would have been less. The actual average wage in 1815 is not stated, but Schwartz notes that the traditional differences in wage between trades appears to have been maintained through the war years, with a bricklayer's labourer earning between 60% and 70% of a bricklayer's wage: taking Thompson's figure of 30s or more for a bricklayer in 1812, a bricklayer's labourer should have been earning ca.20s or slightly more, or somewhat over double his wage for the 1770s and 1780s. According to Schwartz' highly skilled and well-paid trades in East London were paying

25s-30s a week before the 1790s and usually subject to much less seasonal unemployment, while the "inferior" artisans were earning ca.21s a week averaging out over the year to perhaps nearer 18s and for many less. It is therefore clear that with a wage of ca.18s a week in 1799 the London pipemaker was in the inferior artisan class, and earning appreciably less than those in the skilled crafts in London in this period; it also appears that if the Liverpool cost of living was in any way comparable to that of London the highest-paid Liverpool pipemakers of 1796 were well off for their time. In view of the suggestion made in 4: II that the Liverpool pipe industry appears to have flourished until the 1830s it seems likely that at the very least Liverpool pipemakers contrived a modest increase in wages in the two decades following 1796.

One London craft which did manage to press up its wages throughout the period 1795-1815 was that of the tailors. By dint of effective combining, wages in this industry were raised steadily from 25s to 36s in 1813 (E.P. Thompson 1963: 282, 1968 ed). Thus over the period 1795-1813 London tailors increased their wages by almost half as much again. This pattern is closely similar to that for the pipemakers - between the 1790s and 1809 the latter managed to raise their wages by exactly half as much, though in absolute figures they were earning appreciably less than were the tailors. In Thompson's view, however, even these increases probably lagged slightly behind the rise in the cost of living over this period.

Ashton (1948: 158) notes that while the cost of living in 1831 was 11% higher than in 1790, urban wages had increased by 43%, from which one might deduce that by the 1830s, when the rapid rise in the cost of living over the period 1790-1815 had subsided to a more stable and somewhat lower level, the average worker was better off than he had been at the end of the C18. In 1825, subsistence level for a married man with a wife and four children was set at 28s3d a week by a correspondent in a Nottingham paper (quoted in Chapman, Chambers, and Sharpe 1970: 147), of which 17s9d went on food; but the diet listed does not appear to be that of a family in dire poverty, tea, sugar, butter, cheese, milk and meat - five lb of the last - all appearing in appreciable quantity. However, as Thompson points out (1963: chapt 8 esp. pp269, 273, 275, 277, 283-4, 289, 294, 1968 ed), urban wages were largely based on the wages of skilled workers in full-time work, and their use disguises the fact that in the second quarter of the century the number of chronically underemployed was moving unfavourably in relation to those in full employment whose wages were rising throughout the country. The Nottingham figures, for example, would have been based on the diet of prosperous lace-workers, whereas the depressed framework knitters would have had family earnings rarely exceeding 15s (Chapman, Chambers, and Sharpe 1970: 148). Thus a widening gulf arose between the prospering classes and the poor until by the last quarter of the century the "people of the abyss" - whether in East London or St Jude's, Bristol - represented the lowest classes of humanity. About 1842 it appears that the most skilled classes of coalminers, the coal-breakers, could earn in north Somerset 2s6d-3s a day, or 15s-18s a week, a rate which is probably about the same as that which they were earning in 1785. Agricultural workers in north Somerset ca.1842 were probably earning only 7s6d-12s a week (Bluhm 1971: 59-60). Booth's poverty-level of 18s-21s a week for London in the last decade of last century could equally well have been the poverty-level of ca.70 years previously though the affluent classes possibly doubled their income during this time.

It was predominantly from these lowest classes that workers in pipe factories in the C19 appear to have come. As noted elsewhere, the pipe industry declined in the later C18 as the popularity of snuff steadily increased through the century, but on the evidence of the London figures, wages were actually rising during this period. The London evidence suggests the major blow there came when the pipe industry was unable to raise its wages sufficiently during the period 1790-1820. In the case of the Bristol industry the major blow was the loss of a flourishing oversea trade when it was hit first by the Stamp Act troubles of 1765-66 and then by the American Revolution in 1775. The change from the respectable social and geographical position still held by Bristol pipemakers in 1775 to the rapid emergence during the decade 1811-20 of the poor eastern working-class suburb already existing outside the city boundary - later known as St Jude's (6: VIII) - as a pipemakers' ghetto illustrates the equally rapid change of fortune which overtook the pipemaking industry in Bristol at the end of the C18. The progressive entrenchment of virtually all Bristol's pipemakers from the revival of the industry there ca.1805 within this small area as the C19 continues (FIGS 142-45) merely emphasizes the increasing poverty of the trade.

An equally rapid and more spectacular decline of fortune can be seen in the London tailoring trade. As already noted, London tailors' wages steadily increased during the period 1795-1813, almost keeping abreast of the rising cost of living, and until the later 1820s their powerful combination gave them the advantage over their employers. In the later 1820s however, the increasing number of cut-rate tailors prepared to work long hours for low rates and to use their families as assistants began to undercut the highly-paid tailors and in 1834 the latter was broken. Only 15 years later, in 1849, Mayhew cited the tailors as one of the worst examples of cheap and shoddy sweated industry (E.P. Thompson 1963: 283-4, 1968 ed). Perhaps the most spectacular crash of this sort was that of the woolcombers in the north. This class of worker changed almost overnight from the privileged elite of the worsted industry to defenceless outworkers in 1825. By 1830 they were in poverty and in 1832 Cobbett told of the thousands of men in the Halifax area who from a former wage of 25s-30s a week were now reduced to 5s,4s, or even less as the use of machinery (and equally important, the threat of its use), reinforced by the effects of an unsuccessful 23-week strike, broke the power of a class of hitherto key workers in the industry (Thompson pp311-2, 313-4).

One of the problems in the weaving trade in the earlier part of the C19, was, as one bewildered employer expressed it, 100,000 weavers doing the work of 150,000 when there was no demand and when wages were so low that they had to be made up from the poor-rates: under-pay made for over-work by those who could find employment and increased unemployment overall because those who were employed were doing the equivalent of more than one man's work in order to obtain a wage which even approached enough to live on (Thompson pp309, 289).

It seems very likely that such a situation obtained in the C19 pipemaking industry. The evidence available for the costs of pipes is too sketchy for detailed evaulation, but some observations can be made. Where wholesale prices are available they suggest there was little difference between those at the beginning of the C18 and those at the end of the C19. Indeed, Flanagan's cutties at 3/4d a dozen wholesale and Corcoran's prices of 1-1/2d a dozen for their best-quality pipes - Churchwardens and the like - and 1d a dozen for cutties are lower than the prices Warton was paying at Beverley in the early 1700s. The increases in retail prices appear to have been due to the increasing appearance of middlemen. It thus appears that only by increasing production, and finding new markets - for example, abroad - could a pipemaker hope to increase his earnings. As references noted in 1: VII(e) indicate, cutties became very popular in the later 1830s and as late as the 1850s, but the abrupt decline in the number of pipemakers all over England in the second half of the C19 - the disappearance of almost two-thirds of the Bristol firms between 1860 and 1867, for example - shows that the bottom had fallen out of a sweated industry. Whatever wages London pipemakers were earning by the end of the C19 it is extremely unlikely they would have been anywhere as high as Booth's poverty level - 18s-21s a week - in which case journeymen would have been earning less in the 1890s than they had been in the 1790s.

One would expect pipemakers to be classified as skilled artisans, and some indication of wages of others in this class in the industrial areas of south Lancashire-Cheshire-Derbyshire at this time are available for comparison with the wages given for the Liverpool pipemakers. Even these, however, are unreliable comparisons, for wages of artisans are to a considerable extent ruled by demand for their products.

In 1793 Samuel Oldknow the Stockport weaving industrialist paid smiths from 9s to 21s (the latter for head smith) and joiners between 9s and 18s a week. In 1792 he was paying plasterers and painters 12s-16s a week; in 1791 he was paying builders working on a mill between 7s and 19s a week, the lower figure presumably covering unskilled labourers. General labour rates were not surprisingly appreciably lower, though on several occasions they appear to have been higher than might have been expected. This later may have been caused by the policy of paying men by length of service rather than type of work done. In the later 1780s farm labourers on the Oldknow estate were being paid 8s-10s a week and women haymaking 3s a week; in 1800 a man engaged in farming was being paid 10s a week, and the same man in 1803 was earning 16s a week. In 1793 a labourer was being paid 12s a week, and over the period 1799-1803 outdoor workers on the estate were earning steadily-rising wages - builders and roadmakers who had been earning 13s-15s a week in 1799 were earning 18s-21s a week in 1803 (Unwin, Hulme, and Taylor 1924: 164, 162-3, 142, 167, 219 n.1). The rise in the rates for outdoor workers reflect the rising cost of living in this period; it is reasonable to assume that artisans' wages rose similarly, but only if what they produced continued to be marketable and the craft continued to be specialized enough to need skilled labour (either in the work itself or to operate machinery) and there were not too many craftsmen with the relevant skills available.

The figures available for the wages of those engaged in Oldknow's mills in the 1790s suggest that the Liverpool pipemakers were appreciably better off than all but the most highly-paid millworkers. In 1791 bleachers and printers were being paid between 12s and 17s a week - women at 5s - and in 1791 and 1793 carders, cutters, warpers, and winders were receiving from 9s to 14s a week; ca.1790 spinners, slubbers, and winders were earning between 4s and 15s a week, with the average wage for 37 workers being 9s (Unwin, Hulme, and Taylor 1924: 107, 130, 132). These wages may have been higher than in some other mills, for Strutt at Derby in the period 1784-87 was paying male reelers only 3s-5s6d a week, with the overseer getting 7s-10s - women were paid 1s-2s3d (Fitton and Wadsworth 1958: 244-5).

In the more rural cloth industries, combers in Suffolk, who were in the position of small masters and occasionally had journeymen or apprentices under them, were ca.1784 earning ca.10s a week; spinners, including women and children, averaged 1s6d (Unwin 1927: 299). At Frome, Somerset, weavers were earning 20s a week in 1800, almost three times what a farm-labourer was getting, according to Hudson (1965: 141, 1968 ed), although by this time the cost of living was rising so steeply that comparisons are hardly meaningful.

Figures given by Ashton (1924: 189-93, 1963 ed) for wages in the iron industry indicate wages here were markedly lower at the end of the C18 than that given for Liverpool pipemakers in 1796. The most highly-paid furnacemen, the keepers, averaged between 10s6d an 14s or so, depending on location, during the last two decades of the century; furnace labourers earned 6s-9s a week during this period in Shropshire. (By ca.1830 a keeper might receive ca.30s a week; an unskilled labourer ca.10s-13s.) In the 1780s the engine-men at larger ironworks, who were considered relatively well paid, probably averaged 15s-16s a week; in the 1790s a good smith could earn 18s or even more. These examples reinforce the impression that Liverpool pipemakers in 1796 were earnng a very good wage by the standards of the day, and that London pipemakers too earned more at the turn of the century than skilled workers in heavy industry.

It is difficult to estimate how much money was necessary to live reasonably comfortably, for this must have varied greatly with area - to compare closely the wages for Suffolk weavers and those in Lancashire for the 1780s as given above would probably be invalid.

In 1795 the Oxfordshire Quarter Sessions fixed the absolute minimum for the support of a married couple and four children, exclusive of rent, at 9s a week (Unwin, Hulme, and Taylor 1924: 167-8). Two years later, Eden, investigating the Wiltshire village of Seend, found that the wages of an agricultural labourer there varied from 7s to 9s a week. Taking the average as 8s, he showed that the weekly income of one typical family, where the wife and eldest child earned 4s6d from spinning, was 14s including 1s6d parish allowance. All but 1s6d of this went on bread (11s) and butter, this last obtained at a reduced price from the man's master. No rent had been charged for the man's house for a long time, and the house was now considered freehold; fuel was generally stolen from the countryside. In another example, a widow with a large family was able, with the help of earnings or contributions from five of her children and 5s a week from the parish, to earn, when work was available for all contributors, 14s6d a week. The weekly expenses, including 1s for coal, came to 14s4-3/4d, but when barley bread was not baked at home the cost of buying it alone came to 13s-14s a week - as it was, barley flour took appreciably more than half their weekly earnings (quoted in Flinn (ed) 1964: 153-7). This suggests that the bare minimum for existence for a man and his family was definitely higher than the 9s fixed two years before in Oxfordshire. In Gloucestershire, daily wages for common farm labourers in 1796 were noted at from 1s4d to 1s6d a day (with extra at harvest-time) and these figures are comparable to those for a few years earlier and similar to or slightly higher than those in a 1807 source (Woolrich 1974: 183 and n.59), indicating the same range - 7s-9s - for Gloucestershire farm labourers as for their Wiltshire neighbours at this time.

However these rates may have differed from area to area, it is still clear that the Liverpool pipemakers' wages of between 14s6d and 24s a week for men and 7s for women gave them a very comfortable income, especially where the husband was the sole breadwinner in the family. On these figures a pipemaker could earn more than an agricultural labourer and his entire family. It is possible that labourers in southern England were paid less than those in the industrial north (cf Gilboy 1936: 139-41), for in 1793 one of Oldknow's labourers was earning 12s a week to which his family could add ca.2s from the wife's cotton picking, and 2s6d, 3s, 3s6d, and 4s respectively from the two boys and two girls employed as spinners and makers-up. This gives a total family earning of ca.27s, but it would be unwise to take this single example as typical - the man's work may have involved more skill than that required by a farm labourer and it is likely that employment at that wage would have brought keen competition. The families at Oldknow's whose combined wages approached the subsistance level suggested by the Wiltshire and Oxfordshire figures noted above were those where there was no adult male wage-earner in the home (Oldknow figures from Unwin, Hulme, and Taylor 1924: 167-8).

As already noted, R. Campbell in his The London Tradesman (1747) observed that "the few [journeymen pipemakers] that are...constantly employed" earned 10s-15s a week; and the A General Description for all Trades....of the same year gives 10s-12s a week as the figures (cf Oswald 1970b: 230). Campbell lists a number of trades where the journeymen earn "the common Wages" of 12s-15s a week, for example, combmaking, cutling, and tallow and wax chandling; journeymen loommakers made 10s-15s a week, journeymen glassmakers and glovers 10s-12s, and labourers used by tobacconists to cut the tobacco 12s. A journeyman surgical instrument maker could earn 15s-20s a week, a pewterer 15s-21s a week (though he soon developed lead-poisoning), a journeyman silk weaver if employed steadily 18s-21s, a journeyman jeweller 20s-25s; and specialist journeymen in silver-turning and snuff-box or tweezer-case manufacture could earn 20s and even 30s a week. Describing the wages of a fishing net maker Campbell commented they were "no more than Nine or Twelve Shillings a Week"; and discussing hour-glass making noted that there was not "much to be made by those employed", a journeyman earning 10s-12s a week. The comments indicate wages in this range were poor, so that pipemaking in London in the mid-C18 was at the low end of the scale even when employment was steady.

These wages were high, however, compared to what the famous and prosperous Staffordshire potter Thomas Whieldon was paying his journeymen in the middle of the C18. These individuals, each of whom had special skills, were paid from 5s3d a week for the person responsible for preparing the slip to 8s for a turner. Sometimes payments were made in kind, generally clothing (noted in J. Thomas 1971: 169-71; cf Weatherill 1971: chapt 7 esp. pp98-101). Shaw (1829: 189-90, 1970 ed) records the recollections of a certain W. Wood who after finishing his apprenticeship with Josiah Wedgwood, an even more famous and prosperous Staffordshire potter, agreed to serve Wedgwood as a modeller for four years at weekly wages of 4s, 5s, 6s, and 6s6d, plus an earnest of 10s6d each year, though in fact after one-and-a-half years of this arrangement Wedgwood increased Wood's wages to 8s a week, with 10s6d presents added now and then. Wood's father, Aaron Wood, on finishing his apprenticeship to Dr Thomas Wedgwood (not of the same family as Josiah) in 1738, agreed to become a journeyman with Dr Wedgwood for five years at 6s a week, a sum which was 1s more than Wedgwood's other journeymen were paid and which Aaron Wood received in recognition of his abilities; and in 1743 he agreed to work for John Mitchell for seven years at 7s "for every six days that the said Aaron Wood shall work for the said John Mitchell", with an annual payment of 10s6d in addition (S. Shaw 1829: 150-54, 1970 ed). (It is true, however, that both Woods received a weekly wage during their apprenticeship, though of very modest amounts, Aaron receiving 1s weekly for the first three years, 1s6d for the next three, and 4s for his final year; and his son working up from 2s3d to 3s6d over a four- or five-year period. Weatherill (1971: 98; cf p.486 n. 12 below) suggests this, together with the supplying of a few specified items of clothing, replaced the master's earlier obligation to supply all the necessaries for his apprentice during his term.)

As noted earlier, Kearsley's Table of Trades (published 1786 but information tending to be for an earlier period) notes that a pipemaker was paid £5 to £10 when taking an apprentice, and Campbell and the A General Description of all Trades... both published in 1747 give from no payment to £5. Oswald (1970b: 230) notes a payment of £10 and another of £15 to London pipemakers in 1721 and 1717 respectively; payments ranging from £2 to £7 in the 1710s, 1720s, and 1750s to makers in the Home Counties; and one of £20 in Sunderland in 1768. A fee to a tobacconist (presumably in London) during this period is £80, again shows that pipemaking was not a rich man's trade. The concentration of London pipemakers in slum areas (Woodman in Atkinson and Oswald 1969: 174 - discussed in 4: VI) reinforces this impression as does an examination of the indentures for the London guild's apprentices admitted freemen for the period 1689-1708 - 55% were unable to write their names, compared to 15% found in a random check over the same period for other companies (Woodman in Atkinson and Oswald loc. cit.; Oswald 1970b: 229). However, many pipemakers did leave respectable wills (Oswald 1970b: 230), and Peter Birchall of Rainford, one of a Lancashire family which made pipes for over 200 years, had an inventory totalling £117 when his will was proved in 1691 (Berry 1963: 2); but if the Samuel Lucas of Chichester who put his mark to his will of November 1691 (Atkinson in litt. 17 October 1970; see now Atkinson 1972e: 39) which left 1s to each of his wife, two elder sons, and daughter, and the rest of his goods and working tools to his youngest son was at the lower end of the scale - his three witnesses were also illiterate - surely the John Robinson of London who sent his son to Charterhouse and Caius, Cambridge, in the first half of the C17 (Robinson and Spence 1937: 201, Oswald 1970b: 230) must have been unique.

At the Gloucestershire quarter sessions in April 1732 the wages of labourers throughout the county were regulated, and the various rates give some idea of the average earnings of the working classes in the area round Bristol, particularly in the growing industrial suburb outside Lawford's Gate which was in the out-parish of St Philip and Jacob and beyond the city limits until 1835. Carpenters, wheelwrights, and masons, as well as mowers during the hay-harvest, were to receive a daily wage of 1s2d without drink or 1s with drink, the same rates which had been set by the Somerset magistrates some years earlier. An ordinary labourer was to be paid 10d a day, or 8d if drink was supplied and 4d if food was supplied. (It appears to have been considered that every labourer was entitled to consume a quart of beer daily.) These rates indicate artisans were getting 7s a week, or £18 4s a year, and unskilled labourers 5s a week, or £13 a year. A head maidservant or cook was to be paid £2 10s a year, a second maid £2. On farms a head labourer was allowed £5 a year, a second labourer £4, and a driving boy £1, with food (Latimer 1893: 182). These rates were no doubt lower than those for equivalent trades in the towns - as noted below, carpenters engaged on the new Bristol Council House 28 years earlier were earning 10s a week as were masons, while the labourers earned 7s a week (Latimer 1893: 59-60); and Bristol journeymen carpenters in 1747 were earning 11s a week (Latimer 1893: 238). Rural wages in Gloucestershire appear to have increased little by 1768 - Arthur Young in his survey that year of agricultural conditions in the south of England noted labourers in some parts of Gloucestershire earning 6s a week in summer and 4s-5s in winter but he also notes that wages as low as 9d a day - 4s6d a week - were often difficult to obtain for even the strongest labourer (noted in Latimer 1893: 385).

In 1688 Gregory King made his statistical account of England, dividing the population into numerous classes and estimating the number of families in each class, the number of heads in an average family of each class (a figure which included servants) and from this deducing the number of people in each class and the total population of the country (which last he put at 5,500,520). He also estimated the average yearly income per family in each of his classes (for a selection of these figures see Trevelyan 1942: 277, 1946 ed). As many authorities (e.g. Unwin 1927: 345; Trevelyan 1942: 276 and 278, 1946 ed; Ashton 1955: 22-3, 1961 ed) have noted, these figures cannot be regarded as in any way statistically accurate - Unwin said they are "little more than educated guesses" - and Defoe, for example, writing in 1709, listed in order his seven classes of the population and placed artisans above farmers (quoted in George 1925: 363-4 n.48, 1966 ed) whereas King gave the average family income of a farmer as £42 10s as opposed to £38 for an artisan. King's averages were probably in many cases for ranges which were so wide at their extremes that an average would have relatively little meaning, but his figures are worth considering if for no better reason than that they are the only ones of their kind available.

The initial tentative deductions about pipemakers' earnings from Houghton's observations suggested that a master might earn 18s, a journeyman ca.12s, and an apprentice and masters' wife ca.6s. Thus the annual income of a master on this estimate would be ca.£46 and that for a journeyman ca.£31. Neither figure would include additional family income - from wife and children, for example. If, on the other hand, we take the wages set by the Bristol Tilers and Plasterers' Guild and Carpenters' Guild in the 1660s and 1670s a master would have earned only ca.£31 a year and a journeyman ca.£26.

The most likely of King's classes in which master-pipemakers would have been included is "artisans and handicrafts", whose family earnings are given as £38. Thus the £46 suggested from the first estimation based on the organization of Houghton's business for the master's earnings alone is likely to be too high - with additional family income the figure would be well over £50 and bring him above "shopkeepers and tradesmen" (whose annual income King estimated at £45), "lesser clergymen" (annual income estimated at £50) and possibly even above "free Holders of the lesser sort", estimated by King as averaging £55 a year. However, if a Bristol master carpenter was earning ca.£31 a year then to obtain the additional £7 a year to bring his wages to King's wages average for "artisans and handicrafts" would involve adding only ca.2s9d a week to the family income. On these figures therefore, a Bristol master carpenter should easily have been earning King's average for his class. It is reasonable to suppose that Bristol pipemakers of the same period would have generally-comparable wages - indeed, the prosperous state of the pipemaking industry with its New World trade suggests that pipemakers could have been earning more. We may therefore hazard a guess that at this time and in Bristol at least a master pipemaker would be earning 2s-2s6d a day.

The wage for a journeyman carpenter in Bristol in the 1660s and 1670s - ca.£26 - seems reasonable when compared to King's figures - certainly one would expect him to earn more than "labouring people and out-servants" - £15-and "common seamen" - £20 - and with family income he would be approximating the £38 of the "artisans and handicrafts" to which group one would expect him to belong. Carpenters engaged on the new Bristol Council House in 1704 earned 1s8d a day (10s a week), the wage laid down in their guild ordinances of 40 years before for journeymen and perhaps therefore an average figure for the workmen engaged; masons on the same project received the same amount. The labourers made 1s2d a day (7s a week), which represents £18 4s a year (Latimer 1893: 59-60). By 1747 the wage of a journeyman carpenter had hardly changed, being 1s10d a day or 11s a week (Latimer 1893: 268).

The beginning of the C18, as noted in Chapter 1 and elsewhere, saw the height of the popularity of pipe-smoking; thereafter smoking began to decline except at Liverpool, where alone the industry seems to have boomed during the last third or so of the century. This, together with the overall level of real wages showing only a slight rise during the first half of the C18 as the cost of living declined slightly (Gilboy 1936), suggests whatever the evidence deduced from Houghton and King may represent in absolute figures, it probably represents as high or higher a standard of living for pipemakers than they were to experience (with the exception of Liverpool makers) in the following century. That wages remained unaltered from early in the C18 well into the second half is suggested by figures noted by Ashton (1955: 220, 1961 ed) - Westminster and Southwark masons' labourers were earning 2s a day from 1731 into the 1780s; and bricklayers, masons, and plumbers in the areas earned 2s6d-3s a day from 1700 to 1790. Similarly, Oxford builders' labourers earned 1s3d a day from 1700 to 1770.

On Schumpeter's evidence (1938: 34 table 4) the price indices for consumers' goods and producers' goods in 1700 were slightly lower than they had been for 1660 - there had been a slow decline from the 1660s to the late 1680s and then a rise - and it seems unlikely that there would have been any major differences between wages and prices when King made his estimates and those for earlier in the second half of the century. What pipe prices there are available prior to Houghton's time - e.g. 2d a dozen in 1671, 3d a dozen in 1640, 2d-3d a dozen in 1619 for ordinary pipes - tend to suggest, not surprisingly, that earlier pipes were more expensive than the prices given by Houghton. The same holds good for the best-quality pipes, which cost 6d a dozen in 1619 (Houghton listed ordinary pipes at 1-1/2d a dozen and polished pipes at 2d-3d a dozen.) It must be remembered that until Virginia tobacco started to arrive in Britain in the 1610s and 1620s in rapidly-increasing amounts, tobacco supplies were uncertain and very expensive - pipes can thus be expected to command a higher price but a smaller market in the first quarter of the C17. The earnings of a pipemaker must have been determined to a considerable extent not by the price of his products but by the market available to him.

Inventories dating to the later C17 and earlier C18 listing the effects of deceased pipemakers suggest some makers achieved a certain prosperity in their trade. However, two Cornish makers, Simon Earle I of Bodmin who left property valued at £222 11 10 in 1683 (Douch 1971: 147, 145) and Gregory Honychurch I of Penryn whose property was valued at £186 in 1732 (Douch 1971: 149) certainly cannot be regarded as typical even of the most successful makers - in Earle's case, leasehold property accounted for £165 6 0, while Honychurch's total included two "small estates" one valued at £80 and the other at £70. In 1696 the Window Rate for Bodmin noted that Simon Earle II's house had five windows and that another house of his, occupied by a Charles Poolstreet, had eight windows (Douch op. cit. 147). Rather more typical of prosperous pipemakers are probably George Wakeham I of Truro in Cornwall who left property worth £37 13 6 in 1707 (Douch op. cit. 151); William Atwell of Arundel in Sussex who left property worth £37 13 2 in 1727 (G.H. Kenyon 1968: 106 and Atkinson 1972e: 39); Isaac Bilby of Spalding in Lincolnshire who left property worth £37 5s in 1727 (P.K. Wells files); and William Case of Downham Market in Norfolk who left property worth £35 4 11 in 1691/2 (Oswald in litt. 11 October 1972). Somewhat more modest are the estates of William Harpley of Great Yarmouth in Norfolk valued at £21 0 8 in 1674/5 (Oswald loc. cit.), Matthew Heblethwight of Lincoln valued at £19 15s in 1729/30 (P.K. Wells files), and John Barnard of Bodmin in Cornwall valued at £16 10 6 in 1670 (Douch op. cit. 147). Case in particular appears to have been prosperous, for the detailed inventory of his assets indicates he had a two-storey six-roomed house (including the shop) plus a stable and workshop. That the shop was in the house is shown by a reference to a "Shop Chamber" - presumably the bedroom above the shop; there are similar references to a "Parlour Chamber" and a "Hall Chamber" - and no doubt the shop was simply a front room with its window opening for business on the street. "One silver tanker one silver cup & 7 spoons" in the "Parlour Chamber" and valued at £4 were the only prestige items listed, though as noted below (p.581) Case had a mare valued at the same amount. Unfortunately neither the Atwell nor Wakeham inventories as published describe their non-pipemaking assets, which would have been interesting to compare to Case's in view of their total inventory values being so nearly identical. Wakeham evidently lived in a two-storey premises, however, for there is a reference to a "chamber over the shop" suggesting the same sort of arrangement as Case had. The Harpley inventory included "one silver Beaker & two silver spoons" valued at £2, but gave no details of the house. Much poorer, and perhaps typical of the average pipemaker, were John Oates of Truro, whose estate in 1725 totalled only £11 15s of which £10 represented "a pore old house much out of repaire"; and Nicholas Hambley, also of Truro, whose quite detailed inventory came to even less, £9 1s, out of which "one dwelling house and garden", two-storeyed, was valued at only £2 10s, in 1690 (Douch 1971: 150, 145). By comparison, Douch notes that the inventory of a contemporary Truro potter in 1688 listed property valued at £39 1 6d, a figure almost identical to the inventory values for Wakeham, Atwell, Bilby, and Case noted above.

A point of interest in those inventories which are detailed enough to itemize belongings is that ceramic vessels are still rare: Case in 1691/2 had "Nine puter dishes 24 plates 4 salts one tanker & a poringer & a bason" worth together £2 12s and "6 wooding dishes 12 trenshers" total value 9d, plus various pieces of metal kitchenware but apparently no ceramic articles at all; Harpley in 1674/5 had 5s-worth of "Brasse & Pewther" but only 1s-worth of "Earthen dishes"; Bilby in 1727 had "6 small pewter dishes" valued at 10s and "6...and one earthen plate & other ware" valued at 12s; Heblethwight in 1729/30 had "brass & pewter" to the value of £1 but apparently no ceramic vessels; Oates in 1725 had "four platters and seven plates" worth 10s but whether ceramic, metal, or treen is not stated; while Hambly in 1690 had no pottery but quite a collection of metal and treen vessels as the following list indicates:

18 small putter dishes	12s0d
3 plats, 5 poreg dishes of tynn	1s6d
one quart, one pint, one half-pint, one tyn cup	1s0d
one tyn chamber pott, one tyn candle sticke	1s0d
one bell mettle skillitt, one brass candle sticke	2s6d
one brass kittle, one small brass pann	6s0d
five timber dishes, five spoones, five timber trenchers	1s0d

All these items - their total value is £1 5s - were listed "in the Hall". This rarity of ceramics continuing into the earlier C18 bears out an observation of Latimer when describing the visit to Bristol in February 1734 of William IV of Orange who was about to marry Anne the Princess Royal, daughter of George II: 26s, he records, was "paid for the use of Cheny", which apparently indicates for the first time that pewter plates were felt to be unworthy of the occasion (Latimer 1893: 187-8).

Between 1565 and 1664, wages of skilled craftsmen in the building trade - masons, helliers (slaters or tilers), plasterers, carpenters, and sawyers - in Plymouth rose from between 6d and 10d a day to between 1s and 1s4d a day (Welch (ed) 1967: xvi-xvii). In 1583 a mason, a carpenter, and a plumber received an average wage of 1s a day (quoted in G.H. Kenyon 1967:

111), a half to a third of what they would have been earning in the C18 (see above). As these crafts represent skilled labour their rates might be broadly comparable to those of pipemakers in the first half of the C17, and an estimate of ca.1s-1s6d a day as an average pipemaker's wage for this period may not be far from the mark - according to Latimer (1900: 346-7) a workman in Bristol in the middle of the C17 never received more than 1s a day.

With these sorts of wages the occasional presentation of tools to the apprentice on the completion of his term must have been a very real asset. In the Bristol apprentice rolls there are two cases of this in the 1630s and one in the 1650s: in 1633 Edward Lewis I undertook to give Bartholemew Elliott tools to the value of 20s and in 1637/8 he undertook to give Richard Jones a mould and a vice - the two most important and costly items of the trade - or 30s. This would suggest it took a minimum of 30s-worth of equipment before one could set up as a journeyman, and more if one wished to set up as a master - one might need, therefore, three-quarters of a years' income to set up business in the normal way. In 1654 William Williams undertook to give Lewis Williams 30s as well as "a mould and a screw [vice] &c", which seems an extraordinarily generous arrangement. (Incidentally, nothing more is ever heard of these three apprentices - they never appear to have become freemen). In 1742 the inventory of Nathan Birchall, one of the Rainford Birchalls, valued a mould at 15s. His soaking-trough, on the other hand, was worth 2s6d, an indication of how valuable the mould was held to be (Berry 1963: 3).

Duhamel du Monceau (1771: *passim*) gives scattered references to wages and selling prices for pipes in northern France and The Netherlands, but there is not enough information to attempt a detailed analysis. In northern France the *mouleurs* were paid 5 *sols* a gross: a skilled *mouleur* could produce ca.20 gross pipes, that is just over three gross a day, in a six-day week, which gave him a weekly wage of ca.5 *livres*. This gave him a monthly wage of approximately half the 40 *livres* paid to the *batteur*, who prepared the clay, but as has already been noted in 2: I the *batteur* had a particularly onorous job.

In The Netherlands the *rouleurs* and *mouleurs* were paid 4-6 Dutch *sols* per gross, the *rouleurs* getting rather more than the *mouleurs*; the *trameuses*, who were girls, were paid 2-3 *sols* per gross. The wages of the *trameuses* compared to those of the *rouleurs* and *mouleurs* indicate that as in Britain trimmers were paid rather under a half that paid to the moulders.

SECTION III: CONCLUSIONS

As noted at the beginning of this chapter, the wide scatter geographically and chronologically of wages and prices makes interpretation difficult. With the exception of the Barnstaple 1599 reference to a cost of 3/4d a dozen, which as explained is probably very low because the local ballclay deposits must certainly have been used, and the Saltash and Millbrook references of 1622 and 1633 respectively to costs of 1-1/2d and 1d a dozen, which may be low because ballclay from the relatively close South Devon deposits was possibly used by the local Plymouth industry, prices quoted in the early C17 are relatively high when compared to average wages - 6d a dozen for best-quality pipes in London in 1619 may have represented about half a day's wage to an average skilled labourer and even 2d-3d a dozen for ordinary pipes at the same period suggest that those who regularly bought pipes at this time came from the better-off sections of the community. This, however, merely agrees with the evidence from tobacco prices (1: IV) which indicates that one had to be quite well off to indulge in the weed.

Probably before the middle of the C17, however, and certainly before the end of the century, the price of a dozen pipes, even of the best quality, was not above ca.3d, and ordinary pipes cost half that. This clearly represents the steady spread of smoking among all classes which followed the lowering in price of tobacco. The quite marked increase in pipe bowl size towards the end of the C17 must also represent the increased availability of tobacco at all social levels.

The range, depending on quality, of ca.1d to ca.4d a dozen appears to have remained constant throughout the C18, though towards the end of this century the cost of living began to rise with ever-increasing rapidity. However, the cost of living had remained steady over the previous 100 years or so, which suggests that the apparent stability of pipe prices was probably real.

The effect of the rapidly-increasing cost of living on pipemaking in London at the beginning of the C19 is well illustrated in the accounts in the Gorgon - the 1809 wage-increase was the last time the London pipemakers were able to keep abreast of the rising cost of living, and in the 1810s their wages, both real and in relation to the cost of living, fell. Thereafter, though the number of pipemakers increased (Oswald 1960a: 45-6, figs 18 and 19) and the clay pipe was returning to fashion by the late 1830s (newspaper account of 1838 quoted in Hermessen 1926: 326) and had become a "mania" by the mid-1850s (Anonymous 1856a: 94), it is clear from C19 accounts such as ones noted above that pipemaking was a sweated industry and its workers always in considerable poverty; and with the introduction and spread in popularity of the brier pipe (and to a lesser extent, probably the cigarette) from the 1850s onwards, the bottom inevitably fell out of the industry all over England in the second half of the century.

In Scotland and Ireland, where the tradition of tobacco-taking appears to have been different and pipe-smoking only became common in the early C19, pipemaking continued to prosper, relatively speaking, until ca.1880, when the decline set in here too. The reasons for these differences have been discussed in 4: IV.

Prices quoted in the second half of the C19 indicate that elaborately-moulded and high-quality name brands of pipes were able to command a relatively high price, which suggests that the well-to-do still bought clay pipes and were prepared to pay 6s a dozen. However, at the end of the century even Churchwardens and patterned pipes were being sold, at least in Bristol, for as little as 1-1/2d a dozen and cutties for 1d. Indeed in Leicester at the turn of the century cutties were being sold wholesale for 3/4d a dozen to publicans who distributed them free to customers. There was still some market for elaborately-moulded pipes, however, for the same Leicester maker was selling these at 6-1/2d a dozen wholesale and retail they cost 2s6d a dozen.

In the present century attrition among the remaining pipemakers continued. The price of pipes appears to have begun to rise after WW I, presumably following the cost of living and the rising wages necessary to keep workers at even subsistence rates. The unprecedently-high prices now being charged for pipes, especially for Churchwardens, is because the latter are fashionable in certain circles, and because there is a certain novelty-value attached to clay pipes. In North America at least there is a considerable market for clay pipes for smoking, and also for selling at historical restorations such as Williamsburg. In Britain the traditional association of the clay pipe with the labouring classes and particularly those from Scotland and Ireland, dies hard, though as has been shown earlier (3: I and 4: IV) it is a tradition which by and large dates back only to the early C19 and the industrializing of society. Nowadays, though there is still a dwindling band of elderly working-class people who smoke clay pipes for preference or by tradition (see FRONTISPIECE), Pollock's find their best sales area considering population density is the West End of London and that the Irish navvy is perhaps the only class of smoker who would not use a clay (J. Peterson 1968: 13). RAOB and similar organizations also use clay pipes at their meetings.

A fair number of clay pipes, however, must be bought only as novelties or souvenirs. Whether the average brier pipe smoker of today would want to change to smoking clay pipes regularly is debatable, for compared to a brier a clay pipe gives a hot smoke, and once established in a smoking habit a smoker would probably be reluctant to change, particularly to a hotter smoke, for any reason other than curiosity to see what change there would be. The fragility of a clay pipe probably tells against its more widespread use also, for the delicate meerschaum, which by no stretch of the imagination could be called a poor man's or a working-class pipe, has likewise suffered an eclipse of favour.

In view, however, of the prolonged eclipse of pipe-smoking in polite society in the C18 and the rise and fall of snuff as a fashionable means of taking tobacco and the recent re-appearance of cigars in Britain as a relatively common form of smoking, it would be wrong to categorically deny the possibility of the clay pipe industry reviving or at least continuing to hold its own in the future. When this writer visited Pollock's in 1967 production there was ca.250,000 pipes a year and Gordon Pollock was observing that he could hardly keep up with demand; in 1972 he was producing 350,000-500,000 pipes - about the number his father was producing in the 1930s - and was still not keeping up with demand. A quarter of his production goes to export, but in fact that market could probably take the firm's entire output (B. Rogers 1973: 26). The stipulation that clay pipes be used in local and national pipesmoking competitions in Britain following the formation of the Pipe Club of Great Britain in 1970 (see p.149 n.19) has no doubt helped increase the home market. Additional proof that the clay pipe market is not dead, and perhaps not even dying, is the reopening of Southorn's at Broseley and the emergence in the past two or three years of two new manufacturers, the Pilgrim Pipe Company at Skegness in Lincolnshire and Eric Ayto at Bramber in Sussex (p.262 n.4)

Gordon Pollock is undoubtedly correct in part at least when he talks of the clay pipe industry dying from a sort of mental suicide in the face of the more durable and socially-acceptable brier; and while, as he says, luck and accident have played a part in leaving Pollock's in the position of being last in the field and thus able to create their own demand, he is also certainly correct in adding the firm's more modern outlook as a factor (B. Rogers loc. cit.). This may indeed be the most important aspect of the firm's increased business, for it is not just a case of Pollock's filling the gap left by McDougall's who throughout the 1950s and up to the mid-1960s were producing 60 gross a week or ca.430,000 a year (Walker and Walker 1969: 145-6), for Pollock's have gone into the production of expensive clays with vulcanite stems (cf p.148 above and FIG 108) which in 1972 were costing from 90p (18s) to £2.20 (44s) each as well as continuing traditional lines of clay pipes (B. Rogers loc. cit.), and Mr Pollock has made two sales tours of Canada and the United States within the last ten years.

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

Publications available by mail from Printing and Publishing, Supply and Services Canada, Ottawa, Ontario K1A 0S9, Canada, or through your bookseller.

1 Inventaire des marchés de construction des archives civiles de Québec, 1800-1870, by Geneviève G. Bastien, Doris D. Dubé and Christina Southam. 1975. 3 vols. $20.00; $24.00 outside Canada.

2 Histoire économique et sociale de Saint-Lin, 1805-1883, et l'importance de la famille Laurier, by Réal Bélanger. 1975. $4.00; $4.80 outside Canada.

3 Historique structural du fort George, by Yvon Desloges. 1975. $5.00; $6.00 outside Canada.

4 Plans de l'architecture domestique inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture commerciale et industrielle inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture publique, de l'architecture religieuse et du génie mécanique inventoriés aux Archives Nationales du Québec à Montréal, by André Giroux, Nicole Cloutier and Rodrigue Bédard. 1975. 3 vols. $11.00; $13.20 outside Canada.

5 A Report on a West Coast Whaling Canoe Reconstructed at Port Renfrew, B.C., by E.Y. Arima. 1975. $5.50; $6.50 outside Canada.

6 Louisbourg and the Indians: A Study in Imperial Race Relations, 1713-1760, by Olive Patricia Dickason; Surgeons and Surgery in Ile Royale, by Linda M. Hoad. 1976. $10.50; $12.60 outside Canada.

7 Archaeology and the Fur Trade: The Excavation of Sturgeon Fort, Saskatchewan, by Norman F. and Anne Barka. 1976. $6.25; $7.50 outside Canada.

8 Navy Hall, Niagara-on-the-Lake, by David Flemming; Fort Wellington: A Structural History, by David Lee; The Battle of the Windmill: November 1838, by David Lee. 1976. $5.75; $6.90 outside Canada.

9 Fort George on the Niagara: An Archaeological Perspective, by John P. Wilson and Linda D. Southwood. 1976. $8.00; $9.60 outside Canada.

10 Etude sur la vie et l'oeuvre de Jacques Cartier (1491-1557), par Réal Boissonnault; Fouilles au parc Cartier-Brébeuf, Québec, 1959, par Kenneth E. Kidd; Fouilles au parc Cartier-Brébeuf, Québec, 1962, par John H. Rick; Archéologie de sauvetage au parc Cartier-Brébeuf, la ville du Quebec: juillet-aout 1969, par Marcel Moussette. 1976. In press.

Indian and Northern Affairs
Parks Canada

Affaires indiennes et du Nord
Parcs Canada

11b

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

11B

CLAY TOBACCO-PIPES, WITH PARTICULAR REFERENCE TO THE BRISTOL INDUSTRY

IAIN C. WALKER

NATIONAL HISTORIC PARKS
AND SITES BRANCH

PARKS CANADA

DEPARTMENT OF INDIAN
AND NORTHERN AFFAIRS

DIRECTION DES PARCS ET DES
LIEUX HISTORIQUES NATIONAUX

PARCS CANADA

MINISTERE DES AFFAIRES INDIENNES
ET DU NORD

©Minister of Supply and Services Canada 1977.
Available by mail from Printing and Publishing,
Supply and Services Canada, Ottawa, K1A 0S9,
or through your bookseller.

Price Canada: $25.00 a set.
Price other countries: $30.00 a set.
Price subject to change without notice.

Catalogue No.: R64-81/1977-11
ISBN: 0-660-00869-6

Published by Parks Canada under authority
of the Hon. Warren Allmand,
Minister of Indian and Northern Affairs,
Ottawa, 1977.
QS-7027-013-BB-A1

The opinions expressed in this report are those of the author and not necessarily those of the Department of Indian and Northern Affairs.

Clay Tobacco-Pipes, with Particular Reference to the Bristol Industry

by Iain C. Walker

Volume A.
- Chapter 1 - Background
- Chapter 2 - Manufacturing Processes
- Chapter 3 - History of the Clay Pipe Industry
- Chapter 4 - Pipemaking in Various Centres
- Chapter 5 - Production Costs and Wages

Volume B.
- Chapter 6 - Bristol
- Chapter 7 - Summary and Conclusions
- Endnotes
- Bibliography and References

Volume C. Appendices

Volume D. Illustrations

Clay Tobacco-Pipes, with Particular
Reference to the Bristol Industry
by Iain C. Walker

Volume B

451 CHAPTER 6 - BRISTOL
452 Section I - From earliest references to the formation of the guild
460 Section II - The Company and Fellowship of Tobacco-Pipe Makers of Bristol and Bristol guild organization
460 (a) Introduction
461 (b) External Organization
467 (c) Internal Organization
467 (1) Apprentices and Journeymen
474 (2) Election of Officers
475 (3) Welfare
476 (4) Rights of Search
476 (5) Effect of 17th-century royal monopolies
478 (d) Decline
484 Section III - Trends in pipemaking apprenticeship as seen in the apprentice-roll entries, 1619-1814
500 Section IV - Trends in pipemaking freedom as seen in the burgess-roll entries, 1640-1877
517 Section V - Trends in pipemaking as seen in the poll-books, 1715-1852
537 Section VI - Trends in pipemaking as seen in the trade directories, 1775-1921; and in the censuses, 1841-1911
574 Section VII - Trade
574 (a) Home
574 (1) Introduction
593 (2) Distribution
640 (b) Abroad
640 (1) Introduction
649 (2) Europe
653 (3) Africa
655 (4) North America and the Caribbean
685 (c) Patterns of Rise and Decline
695 Section VIII - St Jude's and its 19th-century pipemakers
761 CHAPTER 7 - SUMMARY AND CONCLUSIONS
781 Endnotes
827 Bibliography and References

CHAPTER 6

BRISTOL

SECTION I:

FROM EARLIEST REFERENCES TO THE FORMATION OF THE BRISTOL GUILD, 1652

As noted in 1: V, the earliest-known reference to smoking in England appears to be to a sailor in Bristol in 1556 who walked in the city streets emitting smoke from his nostrils and was chased by a hostile crown for doing so. Unfortunately, the original source for this statement has not been found, and in any case it may be to cigar- rather than to pipe-smoking - if so, it may reflect Bristol's traditional trading links with Spain, links which continued unitl the eve of the Spanish Armada (Latimer 1900: 1; Little 1954: 106, 1967 ed).

The 80 years between the accession of Elizabeth I and the outbreak of the Civil Wars saw the rise of monopolies, particularly those granted to partnerships or companies rather than, as earlier, to individuals. The earlier C17 saw the rise of a number of London-based monopolies whose interests conflicted with many provincial guild-run industries and trades - the tobacco monopoly discussed in 1: V is an example. As noted in 3: I, there was some sort of monopoly on pipemaking at least as early as 1601, there were monopolies on pipeclay form 1618, and in 1619 the "Society of Tobacco Pipe Makers of westminister in the County of Middlesex" was formed with a monopoly on pipe-production throughout England and Wales. This guild had a fitful existence, being dissolved in 1621 and being revived in 1634 only to be dissolved again in 1639. When finally refounded in 1663 it lasted just over 200 years, but never had effective authority beyond the London area. Other London monopolies of the period, however, notably the soapmakers who largely strangled the Bristol soapmakers' guild, and the shipbuilders, vintners, and starchmakers, all damaged these Bristol industries; and the London goldsmiths and pewterers both exercised their search rights in the South-West in the 1630s (F.H. Rogers 1949: 150-67, 170-4; Latimer 1900: 144-5). As noted in 3: I, even the London pipemakers, weak though they were, went as far as Southampton in the 1630s searching for unlicenced pipemakers.

All these harassments cannot have gone un-noticed by the Bristol pipemakers, and probably forced them into a semi-clandestine existence. This would explain why, though pipemakers are noted in Bristol from 1619 on, none appear in the burgess rolls until 1640, when the Westminster guild had been dissolved and Charles I had more pressing problems to attend to than to worry about infringed monopolies. Presumably pipemakers were kept off the burgess rolls in case the books were examined; some were recorded in the apprentice rolls as taking apprentices, perhaps on the assumption that the Westminster monopolists would be less likely to check that source.

The earliest-known reference to pipemaking in Bristol occurs in November 1619 when one Richard Berryman took John Wall, son of Thomas Wall, a Bristol goldsmith, apprentice. This indicates pipemaking had started in Bristol by that date. Assuming that the Berryman whose first name was left blank in the 1652 guild charter was this Berryman, he appears to have been in business for a considerable time; he and his wife Anne certainly took apprentices in 1639/40 and 1640. Oswald notes (in litt. 21 July 1970) that Chalkley found the name Berryman in the Stepney and St George's-in-the-East parish registers, and as it seems an unusual name it is possible there was a connection; on the other hand there seem to be no Berryman pipemakers known from East London and Chalkley is extremely inaccurate where this writer has been able to check his work. However, the will of a Henry Berryman, a pipemaker at Kelvedon which is between Chelmsford and Colchester in Essex, was proved at the latter town in 1703 (Harley 1964: 214), indicating a maker of this name in the later C17 in an area to which an East London pipemaking family might have migrated. (Oswald's reference (1960a: 55) to a pipemaker Benjamin Berryman taking an apprentice in Bristol in 1613 is based on a double error: Pountney in his manuscript list of Bristol pipemakers inexplicably read Richard as Benjamin but had the correct date 1619, while Chalkley in quoting Pountney to Oswald unaccountably gave him 1613.)

Certainly, as noted in Section VII(a)(2) below, bowl forms used by Richard Berriman and other early Bristol pipemakers are similar to known London forms of the first half of the C17. It is in this period too that London and London-style pipes, helped by the monopolies given the Westminster guilds, spread widely in England (Oswald 1960a: 42; Atkinson and Oswald 1969: 204), occurring as far away as the North-East, doubtless coming with the coal trade (Parsons 1964: 238), and Plymouth, where in fact the earliest reference to pipes is a shipment to the city of seven boxes from London in 1617 (Oswald 1970a: 127 and passim; Barber in Oswald 1970a: 125). The earliest Broseley bowls, which date from ca.1630, suggest the industry there was started by a Londoner and that local makers subsequently evolved their own distinctive Broseley bowl-shapes (Oswald and James 1955a: 188, revised dating in Oswald 1970b: pl 201).

The second known Bristol pipemaker is Samuel Lewis. As a smith he is noted taking apprentices from the early C17, but in 1623 when his son Edward and another youth are apprenticed to him he is described as a smith and tobacco-pipe maker. In 1626 when a William Lewis is apprenticed to him he is described simply as a smith, but William Lewis took his freedom as a pipemaker (the first to be recorded) in 1640 and had taken an apprentice pipemaker shortly before that - in 1639/40 - and Edward Lewis was listed as a pipemaker taking apprentices in 1631, 1632/3, and 1640/1, so there can be no doubt that Samuel Lewis taught them the craft.

About this time a John Casy, described as an aquavite maker and tobacco-pipe maker, took Alexander Cherrington apprentice. Cherrington had previously been apprenticed to a shearman (his deceased father, also Alexander, had been a clothworker) in 1621 but just under a year later had been discharged and apprenticed to a brewer and subsequently - no date is given - he was turned over to Casy. He is perhaps the same Alexander Cherrington son of Alexander a clothworker deceased, who had been apprenticed to a shearman in 1619 and turned over to another less than a year later.

Repeated apprenticeship of the same person, often to different masters, without cancellation of the previous entry or any explanation appears to have been very frequent at least during the period 1532-42 examined by Hollis (1949: 15). Apart from Cherrington, one other example is known involving a pipemaker-apprentice - Stephen Bowrey, whose apprenticeship to

Francis and Alice Russell is recorded first on 4 September 1673 and again on 4 November of that year. The second entry differs from the first, however, in specifying seven years instead of eight; but when Bowrey is "by consent of all" discharged and his indentures cancelled 28 March 1674 this notification is added to the September entry only. Willis and Merson, noting duplication at Southampton (1968: xiv), indicate evidence for the rolls being periodically made up from entries on scraps of paper or a rough notebook, which would account for double entries, and there is certainly evidence for this in the Bristol rolls (see Bowrey entry in Appendix IX); in Bowrey's case the second entry may have been inadvertantly dated to one of the days the rolls were being updated and perhaps the difference in length of apprenticeship was carelessness in assuming Bowrey's term was for the by now common seven-year period instead of eight.[1]

The next pipemaker noted is Samuel Morris, described in 1628/9 when he took an apprentice, as a saddler and tobacco-pipe maker, a combination which with Samuel Lewis's combining smithing and pipemaking and John Casy's combining distilling and pipemaking, suggests pipemaking was not well-enough established as a business to give full-time employment to many. The listing in each case of pipemaking as the second trade may indicate, however, that it was a profitable sideline. As late as 1656 a Thomas Monkes was noted as a pewterer and pipemaker, though in 1669/70 he is referred to simply as a pipemaker - both references are to taking pipemaking apprentices. (At least in the C15 and C16 attempts were made to prevent the carrying on of two trades by the one person. Various acts of parliament legislated against cordwainers being tanners, or cordwainers or tanners being curriers, or brewers being hoopers; but in fact there were many examples of mixed trades even during this period (Hollis (ed) 1949: 11-12).)

By 1630/1 the John Wall noted above was taking apprentices - one, Thomas Poyte listed among the guild founder-members (see below) and still working in 1671.

Altogether, 16 pipemakers (including the widow of one who carried on her husband's trade - the husband is otherwise unknown) are mentioned between 1619 and 1648, most of them in connection with taking apprentices, of whom 27 are recorded in the same period. As noted above, the first pipemaker to take his freedom did so in 1640 and only two more did so between then and 1648 - both of them, Robert Powell and John Calloway, are recorded as former apprentices of John Wall, though there is no evidence that Wall himself was ever a freeman and therefore legally able to take apprentices.

Events leading up to the formation of the Bristol pipemakers' guild in September 1652 suggest there was a concerted, if not wholly legal, effort on the part of the City Fathers to promote the industry as a going concern. In the first place, of the 25 founder-members listed and described in the charter (Appendix VI) as all being either freemen or (in four cases) widows of freemen only 9 are known to have been free at the time and 6 are known to have taken their freedom after the formation of the guild - in one case, that of Hugh Lewis, as late as 1661 - and 6, plus the deceased husbands of the 4 widows, are not recorded as ever having taken their freedom. Secondly, between March 1649/50 and November 1651 no fewer than 7 pipemakers take their freedom, all by special dispensation:

Philip Edwards sr, 21 March 1649/50 - by order of the Mayor and Aldermen with the condition that he take apprentice only poor men's children born and bred in the city;

Humphrey Partridge, 25 September 1650 - by order of the committee chosen for admitting freemen, on Partridge's petition and payment of ordinary fees;

Flower Hunt, 23 May 1651 - by express order of the Mayor and Aldermen, with payment of a fine of £5 and a promise to take as apprentice or foreman only freemen or sons of freemen of Bristol;

John Hunt, 23 May 1651 - by express order of the Mayor and Aldermen, with payment of a fine of £5;

Thomas Smith sr, 24 May 1651 - by express order of the Mayor and Aldermen, with a fine of £2;

William Williams, 17 September 1651 - by express order of the Mayor and Aldermen, with a fine of £2 (Williams had been apprenticed to Humphrey Steevens on 10 June 1639 for seven years plus a convenant year);

John Abbot, 10 November 1651 - by express order of the Mayor and Aldermen, with a fine of £2.

In addition to these seven Richard Nunney, who was a founder-member of the guild but one of a number who did not become free until some time after 1652, was made free by order of the Common Council with a fine of £2 on 8 September 1665, and should probably be regarded as one of those specially brought in because of his experience. Another founder-member, James Fox, who was working in 1651 and is probably the "John Fox" apprenticed to Richard Berryman in 1639/40, was also made free by order of the Common Council - though without having to pay a fine - in 1654.

As indicated above, prior to Edwards only three pipemakers had taken their freedom, all by apprenticeship - William Lewis, Robert Powell, and John Calloway. William Lewis, the first pipemaker to take his freedom, did so on 6 June 1640; he is not among the guild founder-members and was therefore probably dead by that time.

Of the nine pipemakers (including Nunney and Fox) specially admitted as burgesses only Williams and Fox are Bristolians and apprenticed in Bristol. The others were presumably pipemakers from some already flourishing centres who were willing to help set up the Bristol industry, but there is no evidence as to their origins and the various lists of known English pipemakers noted in 1: 1 offer no help. London, as the largest pipemaking centre in the country, must inevitably be considered a possibility, though the notoriously inaccurate Chalkley produces no evidence to support his contention that "emigree" [sic] workers apparently from East London went to Bristol between 1644 and 1652 (Chalkley 1955a: 4th page). Cooksey (1974: 29, 30; in litt. 26 November and 18 December 1974) suggests that the William Cooper of Bristol noted taking apprentices in 1640/1 and 1642 but not listed among the guild founder-members and so presumably dead or away from Bristol by 1652 may have been the William Cooper of Poole who was granted a 21-year lease on 19 November 1625 to exploit certain pipeclay deposits near Poole (see p.255 above); but the document giving Cooper this lease (Cooksey MS 1) describes him as a "Gentleman" of Thickfurzes, a farm near Poole, and it seems very unlikely he would ever have become an artisan, either in Poole or elsewhere.

The name Nunney, however, is a local one, presumably taken from the north Somerset village of that name and by 1662 Nunney had a relative of the same name (possibly a brother) in St Philips, Bristol - Robert, a cordwainer - because Richard was bondsman to a wedding agreement involving Robert. The fines levied seem high - as discussed in 5: II the average wage of a pipemaker in the first half of the C17 might have been ca.1s a day, so that £5 would have represented about four months' wages. However, these fines were small compared to that of £20 paid by a "distiller and metheglin maker" in 1677 (Latimer 1900: 384 - metheglin is not as dangerous as it sounds, being a beer made from honey). The Hunts (there is no definite evidence they were brothers but it seems likely, and they made very similar pipes) must have been both fairly well-to-do and reasonably emenable to promises of greater scope to leave wherever they had been working to come to Bristol. (A number of Hunts are recorded as pipemakers later in the C17 in Bristol and elsewhere in the West Country, where their pipes are very common, but there appears to be no references to them before 1651 - this problem is discussed in Section VII(a)(2) below).

Of some of the 25 guild founder-members the only thing known about them is their name - in one case even that is uncertain. The names given are as follows:

*Humphrey Partridge (F 1650, D or left Bristol by 1654);**
*Philip Edwards I (F 1649/50, fl 1668/9, D by 1683);
*William Williams I (A 1639, F 1651, fl 1685);
*Thomas Smith I (F 1651, fl 1654, D by 1672);
*John Calloway (A 1641, F 1648, fl 1670);
Robert Hancock (A 1640/1, F 1655);
*Robert Powell I (A 1636, F 1647);
Hugh Lewis (F 1661, fl 1665, D by 1674);
Alexander Cherrington (A ca.1625, F 1654, fl ca.1660);
*John Abbot (F 1651, fl 1681, poss. D by 1696);
*John Hunt (F 1651, fl 1653);
*Flower Hunt (F 1651, fl 1670, D by 1672);
Thomas Dodding;
Thomas Poyte (A 1631, dismissed 1634, F 1656, fl 1671);
William Bitt... (prob. Biddell, fl 1663);
Richard Nunney (F 1655, fl 1696, D by 1713);
Edward Abbott (fl 1641 Waterford, Ireland, fl 1654 Bristol);
Thomas Deane (fl 1643-53);
Abraham Reeves;
James Fox (prob. A 1639/40, fl 1651, F 1654, fl 1668/9, poss. fl 1696);
[Richard] Berryman (fl 1619);
Jane Wall (widow of John; fl 1650-61, D soon after 1661?);

---

*Free prior to formation of guild.

**A - apprenticed; F - free; fl - recorded (latest date, and earliest when significant); D - dead.

Elizabeth Lewis (widow; wives of both Samuel and Edward - see earlier - called Elizabeth);
Lettice Phillips (widow; husband unknown);
Christian Smith (presumably widow; husband unknown).

Of these, 16 are recorded as having taken apprentices, though all 3 of Berryman's, 2 of Dean's 3, one of Wall's 4, one of Edwards's 3, and Powell's single apprentice were all taken prior to 1652. Of the remainder, Nunney was the most industrious, taking at least 8 between 1655 and 1691; but Flower Hunt and after his death his widow, Christian, took at least 10 apprentices between them over the period 1653-1685/6. Williams and John Abbot had at least 5 apprentices as had Smith and his widow Anne between them, while Calloway had at least 4, Edwards at least 3 plus a son who took his freedom by patrimony, and Fox at least 3[2] (despite the stipulations that Edwards take apprentice only poor men's children born and bred within the city and Flower Hunt only Bristol freemen or freemen's sons, one of Edwards's apprentices was the son of a deceased Bath glover and another was one of his own sons while one of Hunt's apprentices was from Chilcompton in Somerset and another from Wells). Of the 9 pipemakers (including Nunney and Fox) given their freedom to help start the guild, therefore, 6 - Edwards, Flower Hunt, Smith, Williams, John Abbot, Nunney, and Fox - well fulfilled the task entrusted them. Patridge had either left the city or (more probably) had died less than two years after the founding of the guild, for when his son Walter was apprenticed 1 May 1654 to a cooper the father is referred to as "late of Bristol", a phrase which is usually followed in the apprentice rolls, though not in this case, by the word "deceased". John Hunt is not recorded after 1653, when he and his wife Jane took an apprentice, and he too may have died soon after helping to found the guild.

Partridge had a teenage son by 1654, which gives some idea of his age on taking his freedom in 1650, presumably immediately on arriving in Bristol. He must have been at least in his early 30s, and if he did not marry until he had finished his apprenticeship wherever that was (assuming he had had an orthodox apprenticeship) he would have been nearer 40. The guild appears to have had its share of younger, or alternatively long-lived, members: Nunney was still alive in 1696, when he must have been ca.65, and he was probably the last survivor of the original group (though Smith's widow Anne was also still alive in 1696), but Williams was still alive in 1685 when he must have been ca.60 as he had been apprenticed in 1639, and John Abbot was still alive in 1681. Poyte was still alive in 1671, Calloway in 1670, Fox in 1669, and Edwards in 1668/9, while Flower Hunt died between 1670 and 1672. (If the maker's mark on pipestems attributed to Fox is indeed his then he was working ca.10-15 years later than 1669 on the evidence of the bowls found attached to these marked stems. Possibly he is the James Fox noted in 1696; if so, he must have been ca.70 as he was probably apprenticed 1639/40.) Considering life expectancy in the C17, the Bristol guild was at least adequately served with long-lived members to give it and its industry a sound start.

The guild charter notes that

> Whereas The Art and Skill of makeing tobacco pipes is become a Trade a [sic] very usefull and beneficial to

> the makers of them within this Citty and Whereas many Inhabitants and Free Burgesses of this Citty doo by the use and exercise of that Art and mistery maintain themselves their Wives and Familys and having been bread and brought up Apprentices in the same Artifice none others nor lawfully may but such only as they have bene bound Apprentices....

The inclusion in the list of founder-members of so many otherwise unknown or obscure names - those of Poyte, dismissed as an apprentice in 1634, and Cherrington and Hancock who apparently never finished their apprenticeships - reinforces the suggestion that Bristol was making a planned effort to set up a trade which she hoped would be economically profitable and bolstering it against any attack by producing a show of numerical strength, an apparently regular establishment of freedom and apprenticeship, and a general appearance of established tradition. (It is possible that this may be behind Mackenzie's reference (1957: 79) to London pipemakers at an unspecified date trying to stop Bristol pipemakers cutting them out, but if so the story as recounted by Mackenzie is garbled and this writer has been unable to find any original.)

A similar situation may have obtained with the related trades of tobacco-cutter, tobacco-roller, and tobacconist. The first two tobacco-cutters to become free (in 1648 and 1651) did so by special permission and payment of fines and in one case a promise to take apprentice only Bristol freemens' sons, similar to the seven pipemakers noted above. Indeed, as late as 1666 a tobacco-cutter was admitted by fine, suggesting the City Fathers were eager for such tradesmen (Tyack 1935b: 197). Similarly, the first three tobacco-rollers to appear as freemen - in 1658/9, 1662, and 1663/4 - did so by special permission, though with no fine (Tyack 1935b: 198), as did the second (though not the first) tobacconist, in 1663, and another one in 1679 (Tyack 1935b: 199). Such admissions of people with trades beneficial to the city were not unknown - a virginal-maker in 1609 and a cook in 1617, for example, in these cases on condition their families did not claim freedom after their death. In 1700 a brushmaker, a furrier, and a pattern-maker were made free gratis because there were no others in the city (Latimer 1900: 395) and as late as 1722 a Mr Jones was admitted free gratis because of his skill as a writing-teacher and his ability as an author of treatises on arithmetic and book-keeping (Latimer 1893: 123).

No systematic attempt was made to examine the apprentice rolls of the first half of the C17 for apprentices to the trades of tobacco-cutter, tobacco-roller, and tobacconist, but the earliest tobacconist apprentice noted, Edward Smith, appeared in 1635, when his master, George Garrant, was noted as a tobacconist. Smith became in fact the first tobacconist freeman, in 1647, at which time Garrant was recorded only as a freeman (Tyack loc. cit.). It is possible that Garrant was free of a guild not directly concerned with tobacco-dealing, for Tyack records many tobacco-cutters, tobacco-rollers, and tobacconists taking their freedom by virtue either of marriage to the widow or daughter of a freeman or by simply being the apprentice of a freeman of unspecified trade. Garrant indeed may have been one of the 92 licenced tobacco-sellers in Gloucestershire noted in 1637 (Mackenzie 1957: 136). The definite impression, however, is that all three trades, like pipemaking, did not become organized in Bristol until after the London-based monopolies ended with the Civil Wars in the 1640s. Whatever the exact effect of these monopolies on Bristol trade and industry - Rogers (1949: 174) thinks the complaints are somewhat exaggerated - it would be a curious coincidence if the apparent surfacing of these trades and their conscious fostering by the city in the 1640s and 1650s were not connected with the disappearance of London monopolies. In particular the removal of the tobacco monopoly in 1638 after 23 years must have benefited Bristol, however much smuggling Bristol may have indulged in (see 1: V).

SECTION II: THE COMPANY AND FELLOWSHIP OF TOBACCO-PIPE MAKERS OF BRISTOL AND BRISTOL GUILD ORGANIZATION

(a) INTRODUCTION

Until the end of the C17 civic trades in Bristol, as in other centres, were controlled by the trade guilds (for a general account of guilds see Lipson 1915: chapt VIII, 1959 ed and 1931: 330-51, 1956 ed). These acted not only as protectors for the trade and those in it but were regarded by the municipal authorities as the traditional means of keeping industrial control and discipline. In Bristol, guilds were in existence by the mid-C14 (F.H. Rogers 1949: chapt 1, *passim*). It is therefore logical enough that Bristol tobacco-pipe makers formed a guild, in 1652 (charter transcribed in Appendix VI).

The first state recognition of guilds was in 1437 when an act stipulated all Letters Patent and Charters were to be registered and all future ordinances needed the approval of the Justices of the Peace or the leading city officials. This did little more than confirm the authority of local officials over guilds.

In 1503/4 an attempt was made to assert some state control over guilds. All acts and ordinances made by guilds had to be examined and approved by the Chancellor, the Treasurer, and the Chief Justice of either Bench, or by both Judges of Assize during their circuit. No guild was to impede access to common law by members. In 1530/1 the provisions of the act of 1503/4 were again rehearsed, and it was noted that guilds had issued illegal ordinances, and imposed high fees and heavy burdens on those becoming apprentices or on apprentices becoming freemen. Standard admission fees of 2s6d for an apprentice and 3s4d for a freeman were set. That guilds soon evaded this attempt to break restrictive practices is evident from an act of 1536 which noted guilds were forcing respective freemen to swear they would not set up business without permission from their guild; this was forbidden and the fees established five years previously were reaffirmed (cf Hollis (ed) 1949: 9-10).

The major piece of government legislation on employment in the C16 was the Statute of Apprentices of 1563, which was an attempt to produce one comprehensive statute regulating employment (cf Lipson 1915: 314, 1959 ed). It stated no-one could practice a craft unless he had served an apprenticeship of at least seven years and that no apprentice could become a master until he was at least 24 years old. The hours of work for an apprentice were set as follows: from mid-March to mid-September, from 5 a.m. or earlier to 7 or 8 p.m. with half-an-hour for breakfast, an hour for dinner,[3] and half-an-hour for drinking, with an additional half-hour for sleeping from mid-May to mid-August; from mid-September to mid-March, from dawn to dusk with the same hours for meals as in summer. Absence was fined at a penny an hour.

The C16 acts outlined above form the background to C17 employment, and it is against this that one has to set early pipemaking in Bristol.

Unfortunately, no documentary material relating to the Bristol pipemakers' guild is known to have survived besides their charter (Appendix VI),[4] but Bristol guilds in general during the C16 and C17 have been studied (F.H. Rogers 1949) and from this an idea of their function in the C17 can be obtained. Further, considerable information from the apprentice-and freedom-roll entries of pipemakers, which indicate trends over the two centuries and more such entries were made. The following discussion, therefore, considers what is known from these sources in relation to how other Bristol guilds of the C17 functioned, and goes on to examine what can be learned from the apprentice and freedom rolls, and other sources such as poll-books and trade directories, about the C18 and C19.

(b) EXTERNAL ORGANIZATION

How far the regulations of 1503/4 regarding the approval of guild ordinances were observed in Bristol prior to the C17 is uncertain, though some evidence suggests they were not always observed. During the first quarter of the C17 thirteen guilds are known to have had ordinances confirmed under these regulations and no ordinances confirmed in any other manner are known. From 1628 onwards, however, almost all guilds had their ordinances approved by the Mayor, Aldermen, and Common Council (F.H. Rogers 1949: appendix III), which suggests that during the second quarter of the century there was a growing and successful assertion of control by local authority. The ordinances of the Pipemakers' guild were among those approved in this manner, in 1652 (unless otherwise noted information relating to the Pipemakers' guild is taken from their charter, the text of which if given in Appendix VI). In fact this move had been foreshadowed in the preceding quarter-century, for by virtue of the city charter of 1373 the Mayor of Bristol was a Justice of the City and thus all that was necessary under the 1503/4 act was one other Justice, and most of the ordinances approved in the first quarter of the century were approved in this way. The growing hostility between king and parliament during the second quarter of the century probably encouraged such acts of independence, and reinforces earlier suggestions that Bristol felt able to establish a pipemakers' guild because of the breakdown of royal monopolies as the Civil Wars approached.

Those working in crafts were masters (that is, freemen pursuing their trade), journeymen (those who had served their apprenticeship, might or might not be free, but did not have their own business and thus worked for masters), and apprentices (those learning a trade under a master). Apprenticeship as a means of obtaining freedom spread from London precedents from the C13 and had reached Bristol by 1331 (Bickley 1900: I, 37-8; Lipson 1915: 323, 314, 1959 ed; Unwin 1927: 96). By the C15 the London practice of a minimum apprenticeship of seven years had been adopted in Bristol (F.H. Rogers 1949: 36, 42, 44, 48; Hollis (ed) 1949: 4) and by the mid-C16 another London practice, that of an apprentice having to be 24 before taking his freedom, was widespread (Lipson 1915: 215-6, 1959 ed).

Conditions other than apprenticeship by which freedom could be granted varied in Bristol at different times (cf Hollis (ed) 1949: 8), the problem being to reconcile conflicting interests as to number of incomers and to see those admitted were of reputable standing. In 1607 freedom other than by apprenticeship, patrimony (one's father being a freeman), and marriage was restricted to grants made with the consent of the Mayor, Aldermen, and

Common Council, but less than a year later it was found necessary to emphasize that neither the Mayor or Chamberlain could admit a person on their own responsibility.

The Merchant Tailors (protected by their royal charter) and the Cordwainers had a limiting number of craftholders after which no more strangers could be admitted but only those who had served an apprenticeship with Bristol freemen, and the Merchant Tailors reaffirmed this in 1649. However, no other guild had this policy and in 1654 the Council decreed that anyone made free of the city (that is, by them) was to be admitted to the company of the trade to which he had previously been apprenticed; the Mayor and Aldermen reserved the right to reduce excessive guild fees on appeal, and in 1674 the council forced the guild headed by the Smiths to accept a cutler made free by them on his marrying the daughter of a Bristol freeman. In the first half of the C17 some guilds were very jealous of would-be entrants, but many would take stranger journeymen if they had a testimonial of completed apprenticeship (F.H. Rogers 1949: 73).

In 1657 new regulations were made regarding granting of freedom:

(a) as a gift - only to be conferred on the Lord High Steward, the Recorder, anyone who might be helpful to the city, those chosen by the Mayor or with the council's consent

(b) redemption (buying) - forbidden; freedom to be awarded only in return for a valuable consideration and on petition first being made by the Mayor and Common Council

(c) marriage - petition to be made to Mayor and council within a year of the marriage, and a widow or daughter of a freeman could only free one husband unless otherwise agreed to by Mayor and council; further, widows and daughters could not make a husband free if the original husband or father had not paid taxes for seven years or did not live in the city or pay taxes

(d) any stranger admitted by marriage had to produce the names of two burgesses as security.

These restrictions suggest the number of those obtaining freedom by means other than apprenticeship was causing concern, and throughout the C17 these were an ever-increasing number. In 1669 the Mayor's privilege of nominating one personally annually for freedom, confined in 1657, was repealed.[5] Coincident with this trend there were increasing numbers of non-freemen trading in the city, and repeated legislation to remove them and to control goods brought into the city was ineffective. Until the 1770s, however, city and guild authorities continued the unequal fight to keep strangers out (see Section II(d) below).

The ordinances of the Pipemakers stated that no-one save those listed as founder-members and those subsequently admitted by having served apprenticeships were to make tobacco-pipes. An examination of the freedom rolls indicates that freedom by patrimony and marriage were also accepted by the guild - this was probably standard practice and therefore not specifically mentioned in the guild ordinances - and in fact only four pipemakers were granted freedom by special permission after 1652 and two of these, James Fox F 1654 and Richard Nunney F 1655, were founder-members of the guild and two of the several who had neglected to take their freedom prior to the formation of the guild. Nunney, like the seven other specially-freed members, was made free by order of the Common Council, paying a fine of £2; Fox was made free similarly, but paid no fine. The other two granted freedom by special permission were William Cherrington sr made free 1660 by order of the Mayor, Aldermen, and Common Council; and John Tucker sr made free 1662 by similar order and with a 10s fine in addition. No reason is given for these two being granted special freedom but probably both were experienced pipemakers and the city authorities decided their admission would add quality to the rapidly-expanding industry. Both had several apprentices free subsequently.

There are two other cases of the City Fathers allowing an individual to become free. One was that of Francis Russell who was made free 1669 by order of the Mayor and Aldermen on his petition that he was an apprentice of John Tucker sr. As Tucker was certainly alive at this time - he took a number of apprentices in the 1670s and 1680s and did not die until sometime between 1687 and 1691 - it is strange that Russell had to petition for his freedom, but the apprentice rolls for 1658-59 and 1661-67 are now missing and as Russell must have apprenticed 1662 (Tucker became free that year and Russell became free 1669 and presumably had a seven-year apprenticeship) and if the apprentice records had been lost or destroyed as early as the 1660s then Russell may have had difficulty in proving his claim. Against this, however, is the fact that a number of other pipemakers whose dates of apprenticeship are also unknown but who must have been apprenticed during the period covered by the lost records - for example, Thomas Watts F 1675 and an apprentice of Robert Tippett I, or John Garratt F 1676/7 and an apprentice of John Abbott - took their freedom without any apparent difficulty.

The other case was that of Ezekiel Millard who was apprenticed in 1705/6 to John and Margaret Harvey for seven years and who became free in 1713 by order of the Common Council, the reason given being that he had served part of his apprenticeship. Why this was done is unclear. Harvey took Millard apprentice immediately after he himself had become free but there are no other mentions of him; however, had he died or left while Millard was still apprenticed to him, the normal course of events would have been to apprentice Millard to another pipemaker. In any case, Millard was an active pipemaker, for two apprenticeships to him are recorded.

Mention should also be made of Hugh Lewis, son of the Edward Lewis apprenticed in 1624 and working in the 1630s and 1640s. Hugh Lewis was a guild founder-member but did not take his freedom until 15 December 1661 when he did so by patrimony, his fee - the 4s6d charged all those taking their freedom - being waived by the Mayor. Lewis may finally have taken his freedom in order to legally take an apprentice - most of the apprentice rolls for the 1660s are lost, as noted above, but when Timothy Ricketts became free 17 April 1669 it was noted he had originally been apprenticed to Hugh Lewis and a normal seven-year apprenticeship would have meant starting ca.1662 - but why his freedom fee was waived is not stated. Possibly he was poorly-off - he is not known to have had any other apprentices, though the missing apprentice rolls prevent a definite statement on this.

Three other cases may be noted. On 6 August 1631 Thomas Poyte, son of John Poyte a joiner of Bristol deceased, was apprenticed for seven years to John and Jane Wall, but on 1 July 1634 he was dismissed and his indentures cancelled. However, he appears among the guild founder-members in 1652, and when he takes his freedom in 1656 it is by patrimony. When the much-apprenticed Alexander Cherrington, another guild founder-member, took his freedom in 1654 he did so by patrimony, which makes one suspect his apprenticeship sometime after 7 October 1622 to John Casy had been no more successful than his previous apprenticeships. A similar case occurs with fellow guild founder-member Thomas Hancock, though again it is not specifically stated that Hancock failed to finish his apprenticeship. On 8 February 1640/1 Hancock was apprenticed to William and Joan Cooper for seven years and recorded as the son of Thomas Hancock of Bristol, glover, but when he took his freedom in 1655 he did so by patrimony, the entry reading son ("apprentice" stroked out) of Thomas Hancock. This, and particularly the stroking out of the word apprentice, strongly suggests Hancock never finished his apprenticeship. As discussed above, the inclusion of these three among the guild founder-members is one indication of the dubiously legal start the Bristol guild had; however, Poyte and Cherrington both took apprentices subsequently so they were evidently practicing pipemakers.

Freedom by marriage apparently included marrying the daughter or widow of a freeman of a different trade: pipemaker Richard King became free 1660 having married Elizabeth daughter of Thomas Nash a pinmaker; and Robert Tippet I, founder of the most famous Bristol pipemaking dynasty, became free the same year a few months earlier having maried Joane daughter of a William Thomas whose trade is not recorded (there were six Thomas pipemakers and another two apprentices noted, all subsequently, but there is no evidence that this William Thomas was a pipemaker.) These are, however, isolated instances in the C17. Robert Browning, who became free 1669, was the first to take his freedom by virtue of marriage to a pipemaker's daughter, having married Sarah daughter of Edward Battle.

A number of sons followed their father in the pipemaking trade. In a majority of instances the son was definitely apprenticed to his father (e.g. Francis Russell jr, A 1684 F 1698/9), but in other cases no mention of actual apprenticeship is noted: for example, Francis Edwards became free 1683 on the grounds that he was a son of Philip Edwards sr, pipemaker deceased. Curiously, Francis Edwards's presumably elder brother Philip jr who became free 1680 did serve an apprenticeship to his father; and the opposite sequence is seen with Robert Tippet I's two sons Robert II and William sr, Robert II becoming free by patrimony 1678 and his presumably younger brother William becoming free 1689/90 after an apprenticeship initially to his father and completed with his widowed mother. It is possible that these cases reflect a policy of a freeman being supposed to be able to make free only one person by patrimony, though such a ruling does not seem to have been specifically recorded. Hugh Lewis, who as noted above took his freedom in 1661, was the first to do so on the grounds that his father Edward Lewis had been a pipemaker, though in fact Edward Lewis never appears to have been a freeman himself; Robert Tippet II in 1678 was the first pipemaker to take his freedom in this way with a definitely legal claim.

Freedom was also claimed by individuals whose father was or had been a Bristol freeman but in a different trade. As already noted Alexander Cherrington, Robert Hancock, and Thomas Poyte did this in 1654, 1655, and

1656 respectively apparently to cover uncompleted apprenticeships; in 1660/1 William Cissell took his freedom thus seemingly regularly, though his father's occupation is not given. Like Cherrington and Poyte, Cissell took apprentices, so he was a practicing pipemaker.

Additionally, if inconsequentially, this ordinance of the Pipemakers defining qualifications for freedom forbade the selling of any pipes within Bristol other than those made by Bristol pipemakers and their apprentices.

Apprenticeship was a method of ensuring the continuity and reputation of a craft (Lipson 1915: 314, 1959 ed) but inevitably it also became a method by which a guild could enforce its monopoly and those of its already-established members (Unwin 1927: 97-8; 1908: 347-8) - London pipemakers urged limitation on numbers of apprentices as a justification for incorporation in 1663 (Unwin 1908: 347 2nd n.). It was against this type of monopoly that the C16 legislation already noted was directed, but the reiteration of such acts is a measure of their lack of success. Despite a fine of £40 stipulated in the 1536 act for any company preventing qualified apprentices keeping shops such actions were standard and continued in Bristol at least into the last part of the C17, by which time the effective powers of the guilds were declining. The need for testimonials, the production of a masterpiece and a high examination fee, lengthening of apprenticeships or accepting a fine in lieu, setting of financial qualifications, charging apprenticeship fees above the statutory 3s4d, provisions of breakfasts or dinners for guild members on being elected, supplying funds or items for guild premises, outright swearing of an oath not to open a shop without the guild's permission, were all used.

The Pipemakers appear to have been relatively free of these abuses: all those taking their freedom by apprenticeship were charged 3s4d entry to the guild, and all members were charged 4d quarterly "for the use of their Common Hall and Stock". Meetings were to be held at least quarterly, and any member absent was to be fined 3s4d for each occasion. A sidelight on the times - or perhaps the guild authorities had the redoubtable James Fox, whose case is chronicled below, in mind! - was the ordinance that at these meetings members "shall behave themselves Civilly without any approbious or rude language against the Master or any also of the Company upon payne to Forfeite Six Shillings Eight pence for every tyme offending".

The London pipemakers' guild had much the same methods of raising money, though at least in the earlier C19 they had more expensive rates. Admission to the company at that time cost £1 and in addition there were payments of 6s to the Clerk, 1s6d to the Beadle, and 1s to the poor box. There was also stamp duty to be paid, there being apparently two rates, one of £1 and one of £3. Quarterage was 8s per annum for a master or mistress (women were eligible for guild membership and office) and 4s for a journeyman or journeywoman. The company was empowered to levy rates of 40s on masters and mistresses and 20s on journeypeople to cover debts incurred by the company. Members were fined 1s for arriving late at a guild meeting and 2s if they left the meeting without permission. The Master of the company if absent from a meeting was fined 20s, a Warden 10s, and an Assistant 5s (Robinson and Spence 1937: 208-9).

The right of appeal to common law of guild members laid down in 1503/4 and in the Statute of Apprentices was generally ignored in Bristol in the earlier C17; many guilds had the right to jail persistent offenders to await trial by the Mayor and in 1623 the Bakers threatened fines for members refusing to accept findings of their guild court. As the century progressed, however, dissatisfied guild members were able to go to local courts, perhaps initially due to parliamentary sensitivity to monopolies and restrictions interfering with law, but latterly aided by the decline in power of the guilds. As late as 1672 the newly-constituted guild headed by the Masons stipulated fines for members not taking their disputes initially to guild courts, but from 1680 onwards much time was spent in local courts on guild matters, suggesting the city was still supporting apprenticeship but that the guilds could no longer assert control over members (Rogers 183, 61, 96-9).

The guild system was not only the means whereby crafts were controlled by those already in the trades but also the organization through which local authorities gained and maintained control of the industry and its members (cf Lipson 1915: 322-3, 373-7, 1959 ed). Thus councils and guilds were closely associated in their work, and it is not surprising that as Bristol guilds began to lose their control towards the end of the C17 the council's interests lay in attempting to prop the crumbling structure.

In Bristol as elsewhere (Lipson 1915: 372-84, 1956 ed), the council asserted its authority from an early date and in a way parliament was never able to do. Guilds could hardly have persistently ignored parliamentary acts had they not had tacit approval from local authorities, but on the other hand Bristol kept a close hold on the independence of its guilds. Between 1616 and 1620 Bristol forced the Bakers to relinquish a royal charter they had obtained which would have freed them from city control, and when in 1671 the Innholders attempted to do the same they were quickly headed off (Rogers 122-36). In 1674 the council confirmed its control of city guilds by suspending the guild headed by the Smiths - a large organization said to have over 120 families - for refusing to admit a cutler made free of the city by the Mayor and Council and only reinstated it after humble apology to the Mayor (Rogers 136-7). The control the council maintained throughout the C17 on the complex relations between the Butchers' guild and butchers from the surrounding area indicates their continued influence over guilds in economic matters (Rogers 120-2).

In the case of the Pipemakers two clauses in their ordinances allowed them to make additional bylaws for their "better government and welfare" if approved by the Mayor and Aldermen "as they be agreeable to Law and reason and the liberties and privileges of the said Citty Saveing and reserving power to the Mayor and Comonality to change alter or revoake this or any others that shall be found prejudiciall to the Common good of the Citty or against the Laws of England", which clearly indicates the City's position.

A comparison on the one hand between the ordinances of the Westminster-London pipemakers' guild and those of the Bristol pipemakers and on the other between those of the Bristol pipemakers and those of other Bristol guilds leave no doubt that whatever the origin of those Bristol pipemakers imported to help start the guild, the Bristol city fathers saw to it that the guild kept to Bristol traditions and no others.

Guilds had no power to negotiate wages, the authority for fixing these being vested in the Justices of the Peace by an act of 1548 listing heavy penalties for workmen attempting to obtain higher wages and better hours. Local authorities' responsibilities were confined to enforcing specified wage-rates, and in the second half of the C17 several Bristol guilds had their wage-scales fixed by the Mayor and Aldermen. Guilds could, however, negotiate pay-structures with the Mayor and council, as appears to have been the case with the Tilers and Plasterers, whose original ordinance of 1670 was rejected by the council over a wage clause but was approved the next year. Their payscale (which was identical to that of the Carpenters, another guild found about that time, in 1665) gave daily rates of 2s a day for a master, 1s8d for journeymen and elder apprentices and 1s4d a day for younger apprentices. However, for tilers and plasters employed by the year a minimum of 8d a yard was allowed provided the workmen supplied lathes and plaster, and this latter clause appears to have been negotiated by the guild between its incorporation and the following year (Rogers 107-8). The Tilers and Plasterers, and the Carpenters, were the only guilds to publish their daily hours, and these show little difference from those laid down in the Statute of Apprentices (Rogers 109).

(c) INTERNAL ORGANIZATION: (1) Apprentices and Journeymen

From the above it can be seen that Bristol city council effectively controlled the guilds. The first step in apprenticeship was the formal enrollment of the prospective apprentice by the guild and by the city authorities: the latter were thus involved in apprenticeship from the outset, and had a list of apprentices in addition to one of freemen. In Bristol any practicing freeman could take an apprentice whose duty was to learn his master's craft. The contract was by indenture and for a minimum of seven years, and the indenture was inspected and enrolled in the presence of the Chamberlain, the enrollment having to take place within a year of taking the apprentice. Before this ceremony the apprentice was to be presented to his guild. At the end of their service apprentices were to be made freemen, before which they were again presented to their guilds (the Pipemakers indicated that all those about to become free "shall before the Master and Warden for the tyme being take their Oathes to be Observant in all things for the good and Welfare of the said Company and for the performance of all Orders and Constitutions made or to be made for the Order and Government thereof").[6]

Neglect of any part of this procedure could cost the master a £10 fine and again it is clear the city was closely connected with apprenticeship from beginning to end. As late as 1678 a case was brought against a Merchant Tailor for having had an apprentice three years without enrolling him. (In practice several guilds reduced considerably the one-year period for registration, presumably to counter the use of apprentices as cheap short-term labour - periods of between ten days and three months are noted by Rogers (45-6, 48 n.4), but the Pipemakers in fact reduced the period to eight days.)

Once entered into, apprenticeship involved both parties in responsibilities (Lipson 1915: 309-14, 1959 ed). A master was expected to give adequate instruction and to provide board, lodging, clothing, education, sometimes a small salary, and general welfare; an apprentice was expected to be obedient and attentive, to exercise fidelity and self-control, neither to steal nor gamble, not to marry without his master's permission, and to remain with his master for the agreed term. The instructions to apprentices laid down by the Westminster-London pipemakers' guild ran as follows:

> You shall constantly and devoutly on your Knees every Day serve God Morning and Evening, and make Conscience in the due Hearing of the Word preached, and endeavour the right Practice thereof in your Life and Conversation: You shall be diligent and faithful in your Master's Service during the Time of your Apprenticeship, and deal truly in what you shall be trusted: You shall often read over the Covenants of your Indenture, and see and endeavour yourself to perform the same to the utmost of your Power: You shall avoid all evil Company, and all Occupations which may tend to draw you to the same; and make speedy Return when you shall be sent on your Master's or Mistress's Errands: You shall avoid Idleness and be ever employ'd in God's Service or about your Master's Business: You shall be of fair, gentle and lowly Speech and Behaviour to all Men, and especially to your Governors; and avoid all manner of Gaming, Swearing and Drunkenness. And according to your Carriage you must expect Good or Evil from God and your Friends

(Reproduced in Oswald 1970a: pl 206 where it is dated to ca.1800; in Anonymous n.d.[5] inside front cover, the same document is illustrated but dated to the early C17. The ca.1800 date is correct for the document and other copies in the London guild's papers now in the Guildhall (Oswald *in litt.* 16 June 1972), but it may easily be a reprint of a much earlier original). The indenture of 12-year old Thomas Hughes of Broseley in 1848 contained much the same strictures. In becoming "a faithful apprentice to William Southorn in the art of a tobacco pipe maker" Hughes was signed for nine years of

> full and constant work for the payment of sixpence per gross for rolling and moulding common pipes and the sum of fivepence per gross for rolling and moulding short common pipes, the said payments to be made fortnightly during the said term

the money going to his mother who in turn provided food, drink, and other necessities. Hughes was admonished to warn his master of any pending disaster or robbery, to remain unmarried during his apprenticeship, not to play cards or dice or any other unlawful game, was not to partake of liquid refreshment in the local tavern or look at the dancing girls or visiting players, and would lose his apprenticeship if he sold pipes to his friends for his own profit, his mother in the last event forfeiting the very considerable sum of £50 in addition (indenture illustrated and contents recounted in Anonymous 1968c).

Although both these examples are of very late date it is extremely likely their contents differed little in substance from similar admonitions in preceding centuries; indeed, there are no essential differences in content between these two and the indenture used as late as 1893 for a girl working as a cigar-maker in Lincolnshire (N.R. Wright 1970: 25, 38 n.118).

Apprentices could successfully complain about ill-treatment and neglect of training, the cases being tried by guild courts and - increasingly in Bristol as the C17 progressed - by local courts where apprentices were allowed to change masters. An Exeter master had to pay the doctor's bill, a fine, and other expenses for unlawfully chastising an apprentice (Lipson 1915: 311, 1959 ed). Sick apprentices in Bristol in the second half of the C17 were allowed home for treatment with the permission of the Mayor's Court - in 1679 an apprentice smith was allowed home and his master instructed to pay 2s a week until he recovered (Rogers 53).

The Statute of Apprentices stated that for a large number of trades no servant could leave or be dismissed without the approval of two Justices of the Peace, that no servant could be hired for less than a year, and that if a master and servant parted company three months' notice must be given by both parties. A master illegally dismissing servants could be fined up to £2 while an apprentice refusing work or leaving his employment could be imprisoned. Apprentices were also forbidden to leave their birthplace without permission and when seeking employment elsewhere had to have a testimonial. In Bristol the normal practice if an apprentice absented himself without leave was to discharge him and forbid him ever to be given freedom of the city, although runaway apprentices were sometimes imprisoned when caught. Some guilds were less severe than others, however.

There is no mention in the Pipemakers' charter of a policy on dismissal, and such dismissals are rare, or at least are rarely recorded, particularly before the end of the C17. The earliest-noted case is that of Thomas Poyte I apprenticed 6 August 1631 to John and Jane Wall who was dismissed 1 July 1634 and his indentures cancelled (though he is the Thomas Poyte F 1656 listed among the founder-members of the guild in 1652 and still working in 1671). Various forms of termination of apprenticeship appear to have been used. Sometimes (for example, in the case of Richard Jones apprenticed 3 August 1669 to William and Janet Evans) the entry merely said released from apprenticeship or (in the case of George James apprenticed 10 July 1673 to Roger and Susannah Williams) discharged; sometimes there is a bell, book, and candle flavour about the proceedings and discharge was with the consent of the apprentice, his master, his parents (or simply with the consent of all parties), the indentures being cancelled and it being noted that the apprentice was to have no benefit from the part of his apprenticeship served (for example, Thomas Fishpell apprenticed to William and Mary Kinton 19 September 1684).

The increasing use of non-guild institutions to deal with dismissals at the end of the C17 and in the C18 supports Rogers's observations that by this time guilds were becoming unable to assert control without the help of local authority - the first such instances are the cases of John Cherrington apprenticed 14 August 1673 to his father William, whose apprentice-roll entry is stroked out by order of the Mayor and Aldermen with the consent of the apprentice and his master 17 July 1675, his name to be removed from the Tolzey Book and no benefits to be had; and that of William Bruin apprenticed 24 October 1670 to Robert and Margaret Sheppard who was dismissed 16 October 1675 by the Mayor and Alderman with the consent of his master, and had his indentures cancelled and his name crossed out of the Tolzey book, for having been unauthorizedly absent for over one and a half years. Henry Symons, apprenticed 21 February 1680/1 to John and Cecily Tucker, was dismissed by order of the Sessions 12 May 1684; and Richard Redwood, apprenticed to Philip and Anne Calloway 1 July 1706, was dismissed 7 April 1708 by an order of the Justices. From the early C18 the Tolzey court was used to legalize dismissals, changes of master, or termination of apprenticeship - the first instance is 21(?) November 1713 when Benjamin Davis, apprenticed to James Jenkins and his wife 9 May 1709, was discharged by order of the Tolzey. In none of the cases except Bruin's is the reason for dismissal given in the apprentice rolls, but additional details appear in the Tolzey books.

Of Redwood it was recorded in the Tolzey book that he "hath a dislike for the said Trade" and that he and his mother had asked he be released from his master's service, it being understood that he should receive no benefit from that part of his apprenticeship served but could be placed in any other profession; about Davis, on the other hand, it was recorded that he was

> a very disobedient and idle servant and hath divers times run away from his said Masters service and the terms of his apprenticship not being expired hath contrary to his covenant...and the Custome of ye sd City intermarried and thereupon departed from his Masters service & works for his owne hire and gaine.

The most usual reason for letting an apprentice go, however, appears to have been, as was the case with Redwood, that the apprentice was not happy in his trade - as expressed when Alexander Weaver was discharged 5 July 1725 after having been apprenticed to John and Mary Purnell 31 January 1722/3, they had "an utter dislike and aversion to the said Trade". Thus John Short, apprenticed 1 April 1734 to John and Hester Wickham, was on 12 May 1735 also discharged for not liking the trade. The same reason is probably also behind the several terminations of apprenticeship by mutual agreement between the master and the apprentice and his "friends" (those noted in the apprentice rolls as providing for the apprentice as agreed in his indentures): thus Anthony Quinton apprenticed 28 June 1731 to Charles and Mary Hickes and released 18 June 1733, the Samuel Harris apprenticed 30 September 1731 to George and Elizabeth Ebbery and "entirely discharged" 25 November 1736, and John Phillips apprenticed 13 April to the Wickhams and similarly released 29 November 1744.

The number of apprentices a master might employ was left almost entirely to the guilds to settle - the only stipulation in the Statute of Apprentices was that in cloth-making, tailoring, and shoemaking there should be one journeyman for the first three apprentices held and one more for each additional apprentice (Rogers 75). Five years later - 1568 - the Bristol Cordwainers (shoemakers), forced by the Statute to abandon their previous arrangement - 12 journeymen and 3 apprentices to a master - adopted a system allowing each ordinary member one apprentice, each guild warden two, and each guild master three; and versions of this were subsequently adopted by many Bristol guilds. Modifications included restricting two apprentices to wardens who had served in that capacity twice and allowing an additional apprentice towards the end of the senior apprentice's time, the period varying from six months to two years. That these restrictions had a significance even at the end of the C17 is evident from a mason having to discharge in 1701 an apprentice he had over the permitted number; in the 1660s merchant tailors were being fined - £3 6 8 on one occasion - for infractions (Rogers 46-8, 75-6).

The Pipemakers stipulated that a freeman could have only one apprentice; the Master and former Masters of the guild were allowed two but only, apparently, when the apprentice they already had had served at least six of his seven years -

> nor shall any man keep more Apprentices than One Att any One time unless his apprentice in being hath served Six years att least. Then may the Master take another and Soe may one man keep two that has been Master of the said Company....

(It might just be possible to argue that this meant all members could take a second apprentice during the last year of their other apprentice, but that the Master and ex-Masters could have two at the same time - the wording is slightly ambiguous.) Each offence was to be fined 40s, half going to the guild, half to the poor; and the same was to be levied on anyone employing "any woemen or maids or any woemen Stranger" other than his own children (and presumably - certainly on the evidence of the apprentice rolls though it is not specifically stated here - his wife).

Unfortunately, this information is insufficient for Masters or ex-Masters to be identified from the number of apprentices they took. As is noted below, at least some dismissals and transfers are indicated in the apprentice rolls, but there are still a good many apprentices who never appear as freemen and most of whom one must assume died during their apprenticeship - in no instance is the death of an apprentice noted in the apprentice rolls, but obviously such cases must have occurred. Founder-members of the guild were certainly taking apprentices more often than one every seven (or six) years, though the loss of the apprentice rolls for 1658-59 and 1661-67 obscures the pattern. One suspects this particular rule may never have been closely observed, though the re-apprenticeship of James Bull I 8 September 1657 to Flower and Christian Hunt the day after his initial apprenticeship to Thomas I and Elizabeth Poyte possibly indicates the correction of some irregularity in the initial apprenticeship. The entries for the only guild Master known by name, Edward Reed who was Master in 1715, provided no help, for though he took his freedom in 1706 he is not recorded taking an apprentice until 1715. That apprentice, a William Thomas, became free 1722 (he had been originally apprenticed in 1713/4 and transferred to Reed in 1715) so obviously completed his apprenticeship; during the time he was Reed's apprentice Reed took James Machlin apprentice, in 1719. Nothing more is heard of Machlin but in 1723 Reed took another apprentice, William Foord. However, Reed had more apprentices than these, for Thomas Collins F 1721/2 and Thomas Young F 1723 are both recorded as having been Reed's apprentices though their apprentice-roll entries have not been found. There are two cases of makers taking two apprentices the same day: John and Susannah Lee took Robert Carter and Henry Powell apprentice 20 August 1757; and William and Mary Foord received two, Peter Quarman I and Nicholas Corner, transferred from previous masters 22 May 1739.

No mention is made as to the number of journeymen permitted. In the C18 there are an increrasing number of pipemakers who are known to have taken their freedom but who never took apprentices, and most such people probably became journeymen; certainly in a number of instances it is known they remained in Bristol, for they appear in poll-books as pipemakers in the various city parishes. John Frederick Bryant jr (1787: viii) describes his father employing ten journeypeople prior to the Stamp Act of 1765 ruining the export market, which clearly suggests the widespread use of such people and a change from the traditional family business towards a factory industry. Whether the term "journeypeople" implies journeywomen as well as journeymen is not certain - if so it would have been a contravention of the guild rule noted above.

In Bristol the right of apprentices to transfer with the guild's permission was accepted and was a simple practice in constant use, although this was not so everywhere in England. The transfer was generally simply recorded as such, though sometimes a fee was demanded, but some guilds did not allow apprentices to ask for another master.

The Bristol pipemakers' charter makes no mention of policy on this matter, but apprentice roll entries indicate apprentices were simply turned over to a new master and the transfer recorded with the original roll entry. Generally the entry said transfer was made with the consent of the apprentice, his master, a parent or (apparently in the case of orphans) friends, or some combination of these; or by the consent of all parties; or some similar phrase. On two occasions the approval of the guild Master was noted in addition (James Mathews, apprenticed to John and Mary Hunt in 1713/4 and transferred to Ezekiel and Elianor Millard in 1716/7, and James Roach apprenticed to Thomas and Sarah Edwards in 1716/7 and transferred to Henry and Anne Hoar in 1717.)

Sometimes, though not before the C18, the entry indicates transfer was made by order of the Tolzey. The most interesting of these cases is that of John Wit Simmonds, A 23 April 1716 to John and Mary Wilson and transferred to James and Mary Jenkins on 11 February 1717/8. Simmonds had complained to the Mayor and Aldermen that Wilson had

> of late frequently beaten and bruised the s^{d} apprentice in a barbarous and cruel manner without any just reason or provocation, threatening to sacrifice [sic] him, calling him ill names, and cursing him so that he cannot live at peace with his Master but goes in dread of his life of him, the s^{d} John Wilson being often drunk and very passionate,

and that Wilson had not given him food and drink. Wilson had been unable to answer these charges and had been directed to desist from treating his apprentice in this way, but the court, finding he "appeared obstinate and refractory" and receiving testimony of his continued ill-behaviour, ordered Simmonds to be transferred. Nothing is said about preventing Wilson from taking further apprentices, but it is probably significant that though Wilson is noted in 1722 as a pipemaker in the poll-book of that year Simmonds is the last apprentice he is noted as taking.

The Tolzey was involved in other transfers, though none of them involved Wilson's particular problems. In these cases the master had either died or left the city, leaving the apprentice, in the words of the Tolzey book, "destitute both of Instruction and Maintenance"; and the apprentice and his friends had complained to the Mayor and Aldermen who had investigated and ordered the transfer. Friends of John Lee, who had been apprenticed 24 June 1723 to Rebecca Arthurs and turned over 15 August 1726 to Charles and Margaret Buckler, petitioned that Lee be again transferred because both Buckler and his wife had died. This was acceded to 29 May 1729, Lee being turned over to Thomas and Hannah Owen. For similar reasons Joseph Coules, who had been apprenticed 24 June 1728 to Thomas and Sarah Harvey, was turned over 12 October 1734 to William and Mary Nicholas. In the case of John Hercules apprenticed 24 April 1734 to John and Sarah Jones and turned over to James and Mary Jenkins 31 May 1735 Jones had failed in his business and fled the city for fear of arrest, leaving a signed statement dated 22 May 1735 releasing Hercules of his apprenticeship obligations to him; while in the case of Thomas Spencer apprenticed 16 August 1734 to William and Jane Spencer and turned over 8 February 1738/9 to the Jenkinses his master had "failed in his Circumstances and is gone from this City" and his mistress had apparently continued the business but "is since dead", leaving young Spencer "destitute".

As in the other cases, action apparently had to be initiated by the apprentice and his friends and taken before the Mayor and Aldermen. Only in Lee's case in 1729 is the pipemakers' guild mentioned - his transfer to the Owens was made by the Mayor and Alderman with "the consent of the incorporated Company of Tobaccopipemakers witin the said City". When Israel Carey II, who had been apprenticed 11 August 1748 to James and Susannah Carter, was transferred to Thomas and Elizabeth Grant 27 January 1748/9 it was "with the consent of all parties and the Mayor", suggesting the Mayor could act directly. This apparent lack of active guild participation seems strange: one might particularly have expected the guild to have dealt with the Simmonds-Wilson case in 1717/8 before all the dirty linen was washed in public in front of the Mayor and Aldermen, especially when, as noted above, the Master of the guild was specifically noted as approving two transfers of apprentices the previous year which had presumably caused disputes among the parties involved - James Mathews turned over to Ezekiel and Elianor Millard 19 March 1716/7 and James Roach turned over to Henry and Anne Hoar 17 December 1717. (When John Short, referred to earlier, was released from his apprenticeship to John and Mary Wickham 12 May 1735 the signature "Edw Reed" appears at the foot of the Tolzey entry. This may be the Edward Reed Master of the guild in 1715 and last definitely noted in 1723: if so, he may have signed the Tolzey book in 1735 as a guild officer, perhaps because Short himself did not sign, but if so his position is not given.)

The Tolzey court does not appear to have been consistenly used, however - for example, in the case of James Lee noted above his first transfer, in 1726, had been arranged without outside intervention but his second, in 1729, did necessitate court action. When John Barkley, originally apprenticed to Joel and Margaret Williams in 1716, was transferred to John and Mary Purnell in 1719/20 because Williams had failed in business and left, no court action is noted.[7] Again, Thomas Morgan originally apprenticed in 1726/7 to Charles and Margaret Buckler was turned over to John and Rebecca Macey 1729 because Buckler was dead, and no court action is noted. It is possible, therefore, that these court cases really represent situations where the individuals involved had rejected a solution proposed by the guild, though there is no actual evidence for this explanation from the Tolzey book accounts.

Transfers are rarer in the second half of the C17 than later, but this may be because transfers on the death of a master were rarely recorded - there also appear to be more cases of widows continuing their dead husband's business in the second half of the C17 than later. In a number of cases no reason is recorded for the transfer. In no case is any fee noted.

The use of local authorities in these cases and those involving dismissal of apprentices (see above) from the late C17 onwards - the first dismissal in this manner was 24 October 1670 and the first transfer 11 February 1717/8 - supports Rogers's observation that towards the end of the C17 guilds were becoming unable to assert their authority without the help of local courts.

As already noted, the Statute of Apprentices said servants were to be hired for not less than a year and could neither leave (without permission from two Justices of the Peace) nor be dismissed during that year, and that three months' notice from either side was necessary if they wished to part at the end of the year. In fact, these regulations were modified by some Bristol guilds - the period of notice, for example varied from the legal three months to a week and while the period generally applied to both parties the Wittawers demanded three months' notice from employees but gave only one month's (Rogers 74-5). The Pipemakers, however, gave and expected a fortnight's notice, stipulating a fine of 20s if this was not followed, the money to be divided equally between the guild and the poor. Because the Statute of Apprentices decreed only freemen could pursue skilled trades, most Bristol guilds in their C17 ordinances demanded their journeymen be free of the city as well as having served their apprenticeship. As will be noted when dealing with the decline of guilds it was later to be held that the Statute of Apprentices applied only to trades specifically listed in the statute, of which pipemaking was not one, but the Bristol Pipemakers did demand their journeymen be free of the city, masters being fined 20s if found with journeymen not free.

How long it took an apprentice to become a proficient pipemaker producing the three gross or so pipes a day which at least in later times appears to have been the standard daily rate (see 5: 1) is uncertain, and must have varied with the quickness and natural ability of the apprentice to learn, but it must certainly have been long before the seven-year apprenticeship was up. That apprentices were in effect cheap labour is suggested by a case which arose in Southampton, where the widow of a hellier (slater or tiler) complained that an apprentice of her late husband with three years of his apprenticeship still to complete was refusing her any part of his earnings, which normally, one assumes, would have gone to the master. The apprentice was ordered to pay the widow a third of all his earnings in the trade for a year, at which time the case was to be reviewed (Willis and Merson (eds) 1968: xxviii-xxix and xxix n.1).

(2) Election of Officers

Methods used by Bristol guilds to elect officials varied considerably among the organizations. Only the Merchant Tailors, who had a royal charter and thus considerable independence, appear to have approached the oligarchical procedures of London guilds (Rogers 86).

In certain guilds during the C17 only past and present guild Masters could vote, while others allowed votes to their householders and freemen. Others again chose officials by common consent. There were other variations on electing Masters, all with a greater or lesser degree of control by those already in power; generally Masters had to have been Wardens on two or three occasions previously.

Wardens were officials who carried out instructions of the Master and provided and maintained an official link among the various classes in the guild. Again there were various methods of electing them - some guilds allowed the new Master to select the senior Warden while guild members chose the junior, others let the entire membership vote immediately after the appointment of the new Master - the Pipemakers were one of these.

Generally elections were held annually in September or October; non-attendance at elections was normally punished by fine, but there is evidence that at least by the second half of the C17 an active minority was exploiting the lack of interest of the majority (Rogers 86-9).

The Pipemakers held their elections in October - "yearly and every year within one month after the Feast of St Michaell" (29 September) and elected a Master and one Warden. These officials were to take their oaths of office before the Mayor and Aldermen within one week of their election, and refusal or delay to do this was to be fined four marks (53s4d) in the case of the Master and 40s in the case of the Warden, half of the sums going to the poor and the other half to the guild. A Master or Warden found negligent by the Mayor and Aldermen was to be fined 20s to be divided as before.

(The Bristol guild's election of officers was much more democratic than the processes laid down in the various charters of the Westminster-London guild. Their charter of 1619 specified a Master, 4 Wardens, and 12 Assistants. The three petitioners for the pipemaking monopoly were to rotate the position of Master for the rest of their lives, each holding it for a year, and when one died the remaining two to alternate. On the death of the last, Wardens and Assistants were to elect a Master annually. Wardens were to be elected annually from among the Assistants and the latter were in the first place appointed for life with vacancies on death or removal filled by election (presumably from the rank and file). Masters and Wardens after their term of office were to become and remain Assistants (presumably in addition to the 12 already holding office). If a Master or Warden died or was removed while in office a replacement was to be elected for the remainder of the year. A Clerk was chosen for life and on his death the Master, Wardens, and Assistants were to elect a successor. A Beadle or beadles were to be elected (by and from whom is not stated). Election day was the Feast of St John the Baptist, 24 June. The terms of the second charter in 1634 and the third in 1663 followed the same incestuous pattern; the second charter specified 15 Assistants, the third 15 or more. Election day under the second charter was the Feast of St Stephen, 26 December, under the third the Feast of the Annunciation of the Blessed Virgin Mary, 15 August.)

(3) Welfare

Although, as already noted, there was provision for apprentices to go home on sick-leave and even for them to be paid an allowance during this time there is little evidence that Bristol guilds had sickness or social benefits. The Merchant Tailors were almost the only exception, being prepared in the C16 to take over the business of a sick or needy member and reissue his assets to him by indenture (in other words they employed him during his lifetime and the business reverted to them on his death - special arrangements were made for his family). The Merchant Tailors also buried poor members at guild expense and instructed Master and Wardens to visit all sick freemen.

A number of guilds stipulated fines for those not attending a fellow-member's funeral, and in some cases a marriage. Some guilds offered some relief to needy journeymen and two operated almshouses in the city (Rogers 110-1).

Hours of work laid down in the Statute of Apprentices seem to have been generally followed in the C17. Some guilds forbade work on Sundays or church festivals, others allowed limited work (Rogers 109). Feasts and celebrations played their part on guild life - quarter days, election days, and often days of election of guild office and admission to guilds were celebrated by a feast in the guild hall, and there were other occasions as well. In many cases feasts were an expense of the Master, but some were paid by spreading the cost among all members (Rogers 91-2).

(4) Rights of Search

The right of guilds to see that quality production was maintained was acknowledged in Bristol in the C14 (Bickley 1900: I, xxii) and from the early C15 search rights were exercised (Bickley 1900: II, 77, 185).

Some guilds made regular searches at least as late as the second quarter of the C17 and three guild regulations of the second half of the century include search regulations. At the end of the century there were instances of the council using the guilds in cases of quality control, and as late as 1748 the Bakers' Company successfully brought charges against a baker for bread of deficient weight, the culprit being fined 5s per oz of deficient weight to a total of £6 12 6 (Latimer 1893: 272). According to Latimer the Bakers' Company was at that time "zealous in laying informations", many of the fines going to the prosecutors. Search measures had the support of the city council: a constable or serjeant was usually included in the party, which was generally led by the Master or a Warden, in order to secure legal entrance to property. However, some C17 guild ordinances do not mention search rights, and among these were the ordinances of the Pipemakers' guild. Curiously, and not noted by Rogers, the year before these ordinances were formulated, 1651, had seen twice in three days the ignominious rout of a party of Excise searchers by pipemaker James Fox (Nott and Ralph (eds) 1948: 68-9) - this incident is discussed below, but perhaps one can see in the omission of a search clause from the ordinances of less than a year later the fiery opinion of Fox, who was a guild founder-member.

(5) Effect of 17th-Century Royal Monopolies

Patents of Monopoly had been granted in England since the time of Edward III, but in the 80 years between the accession of Elizabeth I and the Civil Wars these privileges had increased in number and scope, being granted to partnerships and companies rather than individuals. The first four decades of the C17 saw the rise of London-based monopolies whose interests conflicted with many provincial guild-run trades.

The effect of these monopolies on Bristol, as noted earlier, seems difficult to judge. A number of writers, including a contemporary talking of 1637, have held Bristol's prosperity was appreciably hit by these monopolies, but Rogers feels (p.174) there is relatively little evidence for this. However, even allowing for exaggerated claims of injury and for Bristolians being "redoubtable expostulators" (MacInnes 1963: 5) it still seems likely that Bristol was adversely affected, even if only to the extent of having to trade clandestinely and by bribery, as was the case with tobacco (1: V). Certainly Bristol soapmaking was largely strangled by the London monopoly, and shipbuilders, vintners, and starchmakers all suffered from London monopolies, though unlike the soapmakers these three were never organized as guilds. Armed resistance by two Bristol starchmakers to London searchers is recorded in 1639 (Latimer 1900: 144-5).

Latimer (1900: 71-2) suggested the monopoly given the Westminster pipemakers in 1619 was keenly felt in Bristol, but on evidence shown earlier there is nothing to suggest a pipemaking industry flourishing before 1619 only to be squashed until the Civil Wars put an end to enforcement of monopolies. The earliest reference to pipemaking in Bristol only occurs in 1619 - it is misleading to cite, as Latimer does (1900: 6), a Bristol ship stolen in 1593 and renamed the Tobacco Pipe as evidence for pipemaking - and while the Westminster monopoly probably made Bristol pipemakers work semi-clandestinely (see above) there is no evidence to suggest it hit a thriving industry, though it may well have inhibited its development prior to the middle of the century.

Nott and Ralph (1948: 5-6) appear to claim the incident involving an excise party and pipemaker James Fox in November 1651 as evidence of Westminster monopolists exercising their rights[8] but this is not so: the Westminster guild, as related in 3: I, had been dissolved in 1639 and was not refounded until 1663 and in any case the account (Nott and Ralph (eds) 1948: 68-9) clearly indicates the officer who came with two "soldiers of the Governor's Company" was from the "Sub Commissioners for the Collectinge of the Excize of Tobacco pipes, by virtue of a commission to them granted in prosecution of the same accordinge to the Acts, and ordinances of Parliament". Their purpose was to "take a distres" (an act of distraint - confiscation of property) against Fox "for his severall contempts" but they were attacked by Fox with a knife and "most desparate oathes". A constable on hand made no effort to intervene - perhaps not surprisingly, since he was fellow-pipemaker Philip Edwards. Fox threatened to kill the official and in the affray stabbed his wife's hand, and when the official returned with another constable, Fox chased the former "a great wayes in the streete". The Mayor decreed Fox should be put in the stocks "for his bloudy oathes aforsaid" (not, be it noted, for his alleged excise irregularities) but the redoutable Fox again went after the officer, this time with a "paire of prongs". Some six weeks later, the narrator, who was one of the soldiers accompanying the official, making a deposition on the affair, observed, with a certain degree of understatement and the aggrieved air of someone who had lost a cause, that the affair "hath bin a greate hindraunce, and trouble, to the aforesaid Commission".

The issue must have been over some duty not paid, perhaps on exported pipes - what are probably Fox's pipes have been found on several North American sites (see Sub-section VII(b)(4) below). It can hardly have been a concern of the city, to judge by the lack of sympathy shown by city officials to the Excise.

Among the London monopolies noted 3: I was one on the supply of pipeclay - there was in fact apparently contradictory monopolies on this commodity. One ordinance of the Bristol Pipemakers stipulated that no inhabitant of Bristol should be permitted to buy for resale within Bristol and clay used for making tobacco-pipes, the purchase of such clay being restricted to the guild or its members. Offenders of this regulation were to be fined 20s for each occasion, the money to be divided equally between the guild and the poor.

(d) DECLINE

Perhaps the simplest reason for the decline of guilds was that they had outlived their usefulness. Because they made no move towards changing conditions they became more reactionary and more of an anachronism (cf Unwin 1908: 4, 1963 ed and Lipson 1931: 344, 1956 ed). In general the unsettling effect of the Civil Wars and the Commonwealth period caused a sharp decrease in apprenticeship enrollments and a slackening in the enforcement of apprenticeship laws (noted in Willis and Merson (eds) 1968: xli n.1). Certainly in Southampton apprenticeship was declining, aided by a decline in the commerce and population of the town itself, after the 1670s, so that by the end of Queen Anne's reign, 1714, apprentice enrolments there had practically ceased and the last recorded apprenticeship occurred in 1739/40 (Willis and Merson (eds) 1968: xl-xli). In London the decline in the importance of freedom for working in a trade was hastened by need to rebuild after the Great Fire in 1666 which allowed non-London labour uninterested in the demarcations between joiners who made cupboards and carpenters who made shelves to become free (Reddaway 1940: 116-20, 248, 250-5, 306-8, 1951 ed), but as early as 1632 City companies complained that "the freedom of London which was heretofore of very great esteem, is grown to be little worth, by reason of the extraordinary enlargement of the suburbs, where greate numbers of traders and handicraftsmen doe enjoy without charge, equal benifit with the freemen and citizens of London". Nevertheless the City's only solution was unsuccessful attempts to ban, from the 1590s on, "houses on new foundations" and the conversion of old houses to tenements first within three miles of the City walls and in 1657 within ten miles (Reddaway 1940: 42-4, 1951 ed). In the C18 City of London non-freemen were rigidly excluded from retail trade but not from wholesale trade or finance, and certainly by mid-century many merchants and bankers preferred not to take their freedom and avoid the inconveniences of office or fines for refusing office - as George says (1925: 16 and n.4, 1966 ed), freedom involved a "ceremonial which had become antiquated but not yet historically interesting".

By the last decades of the C17 Bristol could no longer effectively keep out traders and manufacturers who were not Bristol freemen - when faced with the alternative of having their premises closed or paying a fine, people chose the latter (Rogers 70). Latimer (1900: 495) notes fines ranging from £8 paid by two wigmakers and a milliner up to £35 paid by a merchant in 1700, while in 1716 and 1717 fines of from £5 to £100 were being levied (Latimer 1893: 116-7). Abuses of the apprenticeship system tended to bring the guilds into disrepute, and because the system was restrictive it caused continual attempts at evasion - there were cases of people nominally registered as apprentices simply to obtain freedom (Rogers 56). Increasing grants of freedom on grounds other than those of apprenticeship - patrimony, marriage, redemption - in the later C17 robbed apprenticeship of much of its meaning, and attempts to restrict granting of freedom in these manners were unsuccessful. In 1677 the rector of St Stephen's successfully petitioned to be made free on the grounds he had many children, was likely to have many more, and that his freedom might benefit them. Similar applications were then granted gratis to two other rectors. The same year a labourer was admitted gratis "to make him capable of an almshouse" (Latimer 1900: 384). From 1680 onwards the number of apprentices admitted bore little relation to the number of freemen admitted seven years later (Rogers 45, 57, 63-7, 188).

The growing practice at the same time of guild members paying fines rather than accepting the financial burden of office and the decline already noted in control exercised by guild courts contributed to administrative weakness. Paying fines instead of taking office appears to have been accepted as acknowledgement that the appointment had been held, thus allowing the privileges regarding the increased number of apprentices allowed for Masters and Wardens to be used. Guild funds benefitted: in at least one Bristol guild - the Mercers' and Linendrapers' - it was possible in the second half of the C17 to pay a fine and be exempted from office for as much as ten years. The resulting shortage of willing members allowed or forced - depending on their inclination - those willing to take office to do so many times: one wire-drawer was Master ten times. Fines filed because the wealthy could pay, leaving the burden and expense on poorer members. Decline in prestige and power was inevitable in such circumstances (Rogers 113, 92-3).

By the beginning of the C17 the Statute of Apprentices was being held as applicable only to skilled trades (Lipson 1931: 281-2, 1956 ed), - Coke strenuously opposed it along with monopolies and guild charters supported by royal charter (C. Hill 1965: 235 and n.5, 243, 233, 1972 ed) - and in 1669 it was described as "by most judges looked upon as inconvenient to trade and to the increase of inventions". In the next century it was held the Statute was non-retroactive - trades not specifically noted in it were exempt from its provisions (Ashton 1955: 234-5, 1961 ed) - and criticism was forthright: "that absurd Statute of the Fifth of Elizabeth, which restrains persons from exercising those very trades they may have the happiest genius for" was one comment (both quotations in Lipson 1931: 281, 294, 1956 ed). By the beginning of the C18 Parliament had abandoned enforcing its provisions and a parliamentary committee in 1751 strongly criticized the Statute.

Local authorities, however, tried to maintain its provisions because their interests and those of the guilds were the same - to maintain the status quo, generally on a restrictive basis - and as guilds declined in importance local authorities more and more attempted to enforce the Statute by fines and legislation (Lipson 1931: 277-94, 1956 ed: cf Trevelyan 1942: 322 n.1, 1946 ed).

In Bristol, as already noted, the council was taking over judging of local disputes from the guild courts towards the end of the C17, and there were repeated attempts well into the second half of the C18 to force those trading or setting up business in Bristol to become freemen. In 1716 and 1717, for example, there was a regular hunt to track down such persons and force them to pay for their freedom (Latimer 1893: 116-7). By 1731 when the city authorities again attempted to enforce freedom, the climate had sufficiently changed that the authorities were able to obtain only one successful prosecution (Latimer 1893: 176), but arriere-garde as ever the Council was resolving in 1733 that no-one living outside the city be made a freeman "upon any consideration whatsoever" - a move according to Latimer perhaps intended to discourage merchants from living in Clifton and other suburbs - was fining a non-freeman for hawking in 1736, and conducting a hunt for non-freemen "foreigners" at the end of 1738 after a particularly blatant case of flouting the law. In 1746 a solicitor was fined and in 1748 a tinplate worker; in 1757 a rich Jewish dealer in gold and silver was prosecuted. As late as 1762 and 1765 there were hunts for foreigners but the unsuccessful prosecuting under the Statute of Apprentices by the Bakers' Company in 1772 of a baker who had not served seven years' apprenticeship appears to have been the last attempt to enforce trade monopolies - the baker triumphantly continued to undersell the guild and started a mill to defeat a combination of millers, and his family acquired a fortune (Latimer 1893: 186-7, 197, 214-5, 260, 327, 356, 401).[9] Until the end of the C17 Bristol had made great efforts to keep herself economically independent (Rogers 42-3), and in the early C18 Defoe in his A Tour through England and Wales (first published in the 1720s, quoted in Little 1954: 154, 1967 ed and in Marcy 1966: 6) scathingly criticized the Bristol council for restricting advancement of non-Bristolians, listing as the city's greatest inconveniences

> its Situation, and the tenacious Folly of its Inhabitants; who by the general Infatuation, the Pretence of Freedoms and Privileges, that Corporation-Tyranny, which prevents the flourishing and Encrease of many a good Town in England, continue obstinately to forbid any, who are not Subjects of their City Sovereignty (that is to say, Freemen) to Trade within the Chain of their own Liberties;

and claimed Bristol could double its size if it did not take this attitude (quoted in Marcy 1966: 6; cf Little 1954: 154, 1967 ed). By the time the eighth edition of Defoe's work was published in 1778, however, its editor felt able to say that "All kinds of persons are free to exercise their trades and callings here, without molestation from the corporation; and if poor, they may, if they please, purchase the freedom of the city for a very moderate sum" (quoted in Marcy 1966: 7), a quotation echoed, indeed copied, in Reed's New Bristol Directory of 1792 (cf Matthews 1794: 49). Thus between 1772 and 1778 the old order appears to have finally fallen, after a rearguard action extending over three-quarters of a century. (Events in Southampton took a similar course at this time. There the Corporation fought to have all shopkeepers freemen "strongly for the first twenty years [of the C18], then more feebly for another decade, after which followed a pause and a final effort in the 1740's" (Patterson 1966: 23; for details see ibid. 23-25, 35-36).)

Guild control, whatever its benefits, was clearly restrictive and one which had adverse influence on a city's economy (Lipson loc. cit. and Rogers passim). In 1779 it was observed that "Almost in every town in England where trade flourishes greatly, they never ask whether a man has served his apprenticeship" (quoted in Lipson 1931: 292, 1956 ed; cf Ashton 1955: 223-4, 1961 ed), the growing prosperity of Midland and northern towns being instanced. The beginning of the decline of Bristol guilds, as Rogers's study shows, was the later C17, and it is against this background that one must set the origin and organization of the Bristol pipemakers' guild.

Of the history of the Bristol Pipemakers' Guild after its founding in 1652 virtually nothing is known, as their charter of incorporation is the only known surviving document relating to them.[10] Unlike the charters of the Westminster-London guilds, that of the Bristol guild does not indicate who the original officials were. If the order of names of founder-members given in the charter (see above) is any guide - assuming the Master and Warden had been elected prior to the submission of the charter for approval - then Humphrey Partridge would have been the first Master and Philip Edwards sr the first Warden. A reference in the apprentice rolls notes Edward Reed (A 1699, F 1706, fl 1723) was Master in April 1715 - William Thomas, A 7 January 1713/4 to Thomas and Anne Watts was transferred to Reed and his wife Mary on 5 April 1715 to finish the remainder of his term. Assuming officers were still being elected annually within a month of 29 September, Reed must have been Master for the year 1714-15. On 19 March 1716/7 there is a reference to the consent of the Master to the transfer of James Mathews, A 2 March 1713/4 to John Hunt, to Ezekial Millard and on 17 December 1717 similar consent was given to the transfer of James Roach, A 7 January 1716/7 to Thomas Edwards, to Henry Hoar, but on neither occasion is the Master named. As these appear isolated instances there may have been problems needing a decision from the Master. The consent of the Guild is noted when James Lee, originally A 24 June 1723 to Rebecca Arthurs and later transferred to Charles and Margaret Buckler, was re-apprenticed 29 May 1729 to Thomas and Hannah Owen.

In his trade directory for 1793-4 Matthews notes (1794: 49) the Pipemakers among 24 Bristol guilds, but he also notes that "some of their trades are nearly extinct, others are dissipated", leaving it uncertain as to whether the guilds were still alive in every case. Elsewhere (1794: 41) he refers to "Tobacco-pipes which...are exported in great quantities", when in fact other evidence (see Section VII(b)) indicates that the Stamp Act troubles of 1765-66 and then the American Revolution starting 1775 precipitated the collapse of the Bristol pipe-industry by disrupting its North American trade and the freedom rolls give the period 1791-1800 as the only decade between 1640 and 1840 when not a single pipemaker took his freedom, which suggests Matthews's information was out of date by 30 years or more. Certainly, the first third of the C18 was the high period of the Bristol pipe-industry, and it would be unlikely that the guild disappeared during that period; however, there was a distinct decline in the size of the industry after ca.1740, and it is quite possible the guild died during the last quarter of the century.[11]

The records are known of only one or two city companies - in the case of the Tailors, the senior and richest city company, between 50 and 70 members attended their annual meetings at the beginning of the C18, but by 1757 attendance had sunk to 27, by 1777 to 20, by 1797 to 6, and when shortly after it had been reduced to 2 they elected each other Master alternately until 1815 when one individual elected himself and continued to do so until his death in 1824 (Latimer 1887: 311; 1893: 181). The Mercers numbered about 40 at the beginning of the century but no mention of their hall occurs after 1718 (Latimer 1893: 181). The Innholders' Company was gradually dying from the 1730s and the Barbers' Company from a little later, though the latter was still alive in 1767 (Latimer 1893: 189, 219, 381). The Coopers' Company was apparently active enough to extort a good price in 1742 for its old hall, when the Council wished to demolish it for thoroughfare widening, and to build a new hall (Latimer 239), and it sold land in 1764 for part of what was to become the Theatre Royal (Latimer 364); but its hall was up for auction in 1785, as was that of the Smiths' Company the following year (Latimer 447-8). Also in 1786 the Weavers' Company, now so small as to be no longer able to maintain their hall, sold it (Latimer 370). Matthews, though his information does not always appear to be up to date, noted in 1794 that the Merchant Tailors and Coopers were still wealthy guilds when he was writing, but that the Weavers, the Tuckers, the Bakers, and the Smiths had all given up their halls, "proper signs of the downfall of trading combinations and monopolies" (W. Matthews 1794: 49).

An incident in 1772 (Latimer 401) indicates the Bakers' Company was still alive at that time, though the event in question was its failure to successfully prosecute a non-member for underselling the members, a failure which it probably did not long survive. The Carpenters' Company was still alive in 1766 (Latimer 371-2), and the Chandlers' and Soap Boilers' Company was issuing from its hall a reward for information on smuggled Irish soap and candles as late as 1768 (Latimer 364). Matthews, talking of the 24 Bristol guilds, mentions their halls, formalities, flags, and gowns (1794: 49); the Pipemakers' charter implies they had a hall, but there seems no other evidence for this latter. It is probably more likely they simply rented premises, or used an inn, or met in members' shops or houses.

Incidental references in Latimer indicate the Council continued to exercise authority over the guilds, however moribund the latter had become. In 1730 the Common Council approved new ordinances for the Carpenters, and in 1732 appointed a committee to consider charges levied by the companies when admitting new members, allegations having been made that these were in many cases excessive (Latimer 1893: 181). While no further mention appears of this committee or of any action of the Council on this occasion the latter did in September 1747 forbid the Carpenters' Company to levy fines of £20 on prospective carpenters and ordered fines to be kept at £5 (Latimer 268). The Innholders' Company complained to the Council in August 1734 that it was unable "to preserve their ancient rights and customs from want of good laws, orders and customs" and a committee was appointed to draw up ordinances; while a complaint - apparently inaccurate - was made in September 1738 about an ordinance of the Butchers' Company, whose ordinances had been approved as recently as 1714, and a committee was appointed to investigate this also.

In 1739 a number of peruke-makers and barbers, freemen of the Barbers' Company, presented a petition to the Council complaining of "diverse impositions and grievances" imposed on them by the surgeons, who by a medieval anomaly were still members of the Barbers' Company; the Masters and Wardens of the guild counter-petitioned expressing surprise that the Council should be importuned by such unfounded allegations from "uneasie members" and a committee was to investigate this, but none of these committees ever reported (Latimer 189, 211, 219). In 1758 at the swearing-in of the Master of the Barbers' Company "the Mayor was pleased to take notice to them of the scandalous practice of shaving on the Lord's Day, desiring the same might be suppressed", and after warnings were issued several convictions were subsequently recorded (Latimer 1893: 336). In 1738 there was a case of a baker who had been flouting both the Bakers' Company and Council directives and who was only with difficulty overcome (Latimer 214-5) and in 1754 the Chandlers' and Soap Boilers' Company prosecuted a ship's captain before the local magistrates who fined him for having some soap from Ireland on board (Latimer 312-3), two incidents which show how guilds relied on local courts for help.

SECTION III:
TRENDS IN PIPEMAKING APPRENTICESHIP AS SEEN IN THE APPRENTICE-ROLL ENTRIES, 1619-1827

Examination of the pipemaker apprentice entries in the apprentice rolls over the more than 200 years such entries were made shows certain trends evolved.

The traditional seven-year apprenticeship was very largely adhered to throughout the history of the industry until the last pipemaker apprentice, Thomas George, was apprenticed to his namesake 13 July 1827, but the formative decades of the guilds saw a number of non-standard periods, of both more and less than seven years. These non-standard periods were relatively common into the 1660s but died out before 1700.

In the 1620s, 1630s, 1640s, 1650s, 1670s and 1680s there were apprenticeships for eight years, and in the 1620s and 1640s one each of nine years (as noted earlier, the apprentice-roll entries for 1658-59 and 1661-67 are missing). The last eight-year apprenticeship was that of Henry West, apprenticed to Anne widow of Thomas Smith 23 September 1689. The most common way of extending the period an apprentice stayed with his master, however, and one particularly common in the 1650s, was to add a covenant year. In two cases two covenant years were added, in another, four. Often, but not always, pay either in money or clothes or pipemaking tools was given for these extra years. The last times this form of extension was used were when Richard Saunders was apprenticed 25 June 1677 to William and Mary Kinton for seven years and one covenant year and Nathaniel Chilton was apprenticed 26 February 1695/6 to John and Mary Sinderling for seven years and six covenant months. Thomas Addison was apprenticed 6 May 1689 to James and Anne Abbott for eight years with a payment of 5s for the last year, which suggests the eighth year was effectively a covenant year.

Some examples of the use of the covenant years are as follows: John Williams was apprenticed 27 March 1624 to Samuel and Elizabeth Lewis for nine years plus a covenant year on completion of which he was to be paid 20s; Bartholemew Elliott, apprenticed to Edward and Elizabeth Lewis 20 March 1632/3 was to receive no payment for his extra year (in this case not actually termed a covenant year) which he served after an eight-year apprenticeship but was to receive "for interest" tools to the value of 20s; James Bull I apprenticed 7 September 1657 to Thomas and Elizabeth Poyte for seven years and one covenant year was to have one suit and a cloak, worth £3, for his covenant year. Daniel Billinge, apprenticed 7 April 1631 to Edward and Elizabeth Lewis for seven years, was to serve an extra year (again not termed a covenant year) and as in Elliott's case it was specified there was to be no payment for this year - unlike Elliott, however, Billinge was not offered tools as compensation. When John Sinderling was apprenticed 5 December 1653 to Flower and Christian Hunt for seven years and one covenant year the Hunts agreed to pay Sinderling's freedom fee - 4s6d - and give him double apparel, and for the covenant year pay him £3 or a mule worth that plus a cloth cloak. The mule would have been more useful than might appear at first sight, for as noted later (Section VII(a)(1) below), a horse, bridle, a pair of hampers, and a pack-saddle are listed in a 1727 inventory of a deceased Sussex pipemaker and two inventories of deceased Lincolnshire pipemakers, one of 1671 and the other of 1728, list horses, bridle, and various types of saddles and hampers, clearly suggesting these makers made rounds on horseback selling their products. Sinderling would have used a mule similarly. Nicholas Stokes was unfortunate enough to be apprenticed to one of the William Evanses 29 December 1669 for seven years and no fewer than four covenant years, with no payment for them noted, while John Reynolds, apprenticed 19 May 1656 to John and Cicily Calloway for seven years and two covenant years was to receive only 2d (!) for these two years. However, Evan Dyer, apprenticed 2 April 1670 to Richard and Anne Nunney for seven years and two covenant years was to receive 30s.

The meaning of these additional years is not clear. The Statute of Apprentices stated that an apprentice could not become free before he was 24, which would normally mean apprenticeship would start at about 17; and it is possible that youths younger than that age were either apprenticed for more than seven years or had a covenant year added, or a combination of both in order to bring the age at which they would gain their freedom up to about 24. Merson, discussing the Southampton apprentice records, notes (Willis and Merson (eds) 1968: xviii-xx) a steady trend towards a uniform seven-year apprenticeship term there over the period between the 1610s and the 1670s, and that this fits the pattern known to have prevailed generally in England after the middle of the C17. Many guilds in English towns, he notes, had a minimum age at which apprentices could be taken which was usually 14 though sometimes as young as 12 or as old as 16, and it seems probable that the age of 24 for obtaining freedom was not observed and that 21 was a general age for freedom. The Poor Law of 1601, however, permitted poor boys to be apprenticed until they were 24, and at Southampton at least orphans tended to be apprenticed for longer than other apprentices - in one case an orphan boy was bound in 1661 for four covenant years *before* commencing a seven-year apprenticeship because he was "very younge" (Willis and Merson (eds) 1968: lvi-lviii). No doubt in Bristol too, 21 rather than 24 became the approximate age at which freedom could be taken, and the older tradition (perhaps not unconnected with the exploiting of cheap labour) of long apprenticeships died out - the published Bristol apprenticeships for the years 1532-42 (Hollis (ed) 1949: 15) indicate apprenticeships at that time were consistently more than seven years, lengths as high as 16 years being noted. The fact that covenant years were most popular among Bristol pipemakers in the 1650s certainly indicates the newly-formed guild deliberately used it and that the city authorities allowed it.

Four instances of apprenticeships for less than seven years are noted. Each of them uses the form "for a third of" (*pro tercio*) a number of years and two involve the same master. The significance of the formula "a third of" is unknown. George Hillman was apprenticed 18 September 1650 to Robert and Suzanne Powell for a third of seven years, Thomas Jones was apprenticed 1 October 1650 to John and Elizabeth Calloway for a third of 11 years, Peter Calloway was apprenticed 22 April 1651 to his brother and sister-in-law John and Elizabeth Calloway for a third of seven years, and William Kinton was apprenticed 10 September 1657 to Jane widow of John Wall also for a third of seven years. Young Calloway was also to serve one covenant year, but was to receive at the end of his term one cloak, one vestment, "or 50s in hard cash" (vel ls. in pecunia numerata). Why such short apprenticeships should have been arranged is difficult to explain, particularly when Jones's term was a third of a figure larger than the normal seven years and Calloway was to serve a covenant year after his reduced apprenticeship. It is just possible, in view of the close spacing of the first three - two pipemaking apprentices in succession and three out of four such successive entries - and their occurrence during the period when the city authorities were building up their pipemaking strength preparatory to forming the guild, that these three represented a "crash programme" for producing potential freemen. If so, the idea failed, for none of the three is recorded ever taking his freedom. Kinton duly took his freedom, but not until seven and a quarter years after he had been apprenticed. Whatever the reason, the formula was not used again, and these four instances are the only occasions pipemaker apprenticeships were for less than a seven-year period.

Towards the end of the C17 a new trend which was to become common practice in the following century appears. This is the requesting of the parent or guardian of an apprentice to supply items towards the maintenance of the apprentice during his term and is part of a country-wide trend in apprenticeships during the C17 (see Willis and Merson (eds) 1968: xx-xxi).[12] Hitherto the master and his wife had been responsible for providing for and maintaining their apprentice, standing as they did in parentum loco, but now first various articles of apparel and by the early C18 money is recorded as being given the master in return for taking apprentices.

The first instance of clothing being given occurs 17 September 1688 when Charles Chick is apprenticed to John and Mary Sinderling for seven years, his father promising to deliver one suit of apparel at the end of his son's second year as an apprentice. Two months later, 15 November 1688, William King was apprenticed to Francis and Alice Russell for seven years, King's father promising to find apparel. The following year, 4 September 1689, Edward Randall son of Edward Randall pipemaker deceased was also apprenticed to the Sinderlings for seven years, his mother also agreeing to supply an entire set of apparel at the end of her son's second year as an apprentice. When William Morgan, whose father though not his mother was dead, was apprenticed 9 November 1693 to one of the William Evanses and his wife Mary for seven years friends were to find apparel for him. (In the Southampton apprenticeship records the term "friends" occurs in agreements where the apprentice's father is dead, and may, as Merson notes in one instance, have been the dead father's executors (Willis and Merson (eds) 1968: xvii); but certainly among Bristol pipemaker apprentices, friends were cited frequently when there is no indication of the father being dead). There was a rather curious arrangement when Nathaniel Chilton was apprenticed 26 February 1695/6 to the Sinderlings: he was to serve a six-month covenant term in addition to his seven years' apprenticeship and his master and mistress were to find him apparel during his term and also "double apparel" (possibly for his covenant period though this is not specifically stated) but at the same time friends were to deliver to his master and mistress at the end of the first two years a complete set of apparel with hat, shoes, stockings, and linen.

One cannot help feeling that the Sinderlings were on to a good thing here, being the first pipemakers to use and use repeatedly this method of clothing their apprentices. In this last case John Sinderling died when Chilton was half-way through his apprenticeship, for Chilton was transferred 7 November 1699 to Joseph and Jane Stanford and Sinderling's death is noted as the reason for the transfer. When John Beaton was apprenticed 29 April 1700 to Robert and Sarah Browning for seven years rather specific terms were laid down - Beaton's father was to provide one suit of apparel after 2-1/2 years and the apprentice was to have at the end of his term three suits of which his original was to be one, the one his father supplied to be another, and the third was to be of new broadcloth and supplied by his master. The reference to his having his original apparel is interesting not only because it indicates a suit was expected to last that long but also because it may have been specified to make sure the master did not attempt to keep the original suit.

The last occasion on which it is recorded that a master taking a pipemaker apprentice made a contribution in cash or kind towards the upkeep of the apprentice occurs in 1704, when John Lewis, taking John Bonner apprentice 22 July, undertook to give Bonner a new suit of clothes or 40s in lieu at the end of his term. From the 1710s onwards it was becoming progressively more common right into the C19 for friends not only to find apparel but to undertake its washing (refrences to apparel and lotion, or simply lot). The first time this occurs is when Francis Payton is apprenticed 20 November 1717 for seven years to Thomas and Anne Harvey; it occurs with four of the last six pipemaker apprentices recorded, who cover among them the period 1795 to 1827. In two instances, with John Horley apprenticed to George and Anna Viner 6 November 1756 and Henry Powell apprenticed to John and Susannah Lee 20 August 1757, friends were to look after mending as well as washing. However, in the 1780s and 1790s there are four instances where the master was to find apparel and washing: these were John Lewis apprenticed 13 December 1783 to John Carey, Isaac Davis apprenticed 15 January 1787 to John and Martha Okely, John Adams apprenticed 2 April 1792 to John and Mary Carey, and Whitson Moore apprenticed 22 June 1792 also to the Careys. Probably by coincidence, they form a group of four successive pipemaker apprenticeships. In the case of the last pipemaker apprentice, Thomas George II apprenticed 13 July 1827 to his grandfather Thomas George I, the master was to find "everything" - this, however, may have been as a favour within the family.

There is one case of an apprentice coming out rather well on an agreement on clothing. When Ezekiel Millard was apprenticed 18 January 1705/6 to John and Margaret Harvey it was agreed that he should find his own apparel during his apprenticeship and that in return the Harveys should pay him £2 15s per annum. This seems quite a high sum, particularly as it was to be paid for each of seven years; in fact something happened to Millard's apprenticeship, for when he took his freedom on 10 December 1713 it was by permission of the Common Council on the grounds that he had served part of his apprenticeship to Harvey.

Occasionally the shoes and stockings were apparently supplied by the master and mistress - in the cases of Alexander Weaver apprenticed 31 January 1722/3 to John and Mary Purnell for seven years and Thomas Morgan apprenticed 20 January 1726/7 to Charles and Margaret Buckley friends were to supply apparel excluding shoes and stockings. On the other hand, when Mathew Gethling was apprenticed 25 May 1715 to James and Katherine Abbott the only item his friends were asked to supply was stockings (caligar'). Morgan had an unusual apprenticeship for it appears his friends were also to supply food and drink (venital & Galer). A cash payment also came with Morgan (see below), the figure 13 being given but whether pounds or shillings is not stated (though to anticipate the discussion below £13 would be appreciably the highest amount given with a pipemaker apprentice and about five or six times the normal sum paid with pipemaker apprentices in the earlier C18). To complicate matters Morgan was transferred to John and Rebecca Macey 16 May 1729 as Buckler had died.

There appears to have been no set manner in which the various conditions were arranged, and it may have been by private agreement and bargaining. When John and Susannah Lee took two apprentices the same day, 20 August 1757, the agreement with Henry Powell was that friends should arrange for washing and mending while that with Robert Carter had no special arrangements; in neither of these particular cases was a payment made.

What happened in practice to original agreements as to pay for covenant years or promises of clothing or other items from the master when he subsequently died is uncertain. The Tolzey book entries in the earlier C18 relating to transfers of apprentice certainly state that both the master and the apprentice were to abide by the agreements made in the apprentice's original indenture, but the problem must have been particularly acute when payments had been made to the first master, an arrangement which tended to be an alternative to demands for clothing though there are a number of cases of both clothing and money being given.

The first instance of money being paid with a pipemaker apprentice occurs 26 September 1713, when William Thomas was apprenticed to Robert and Sarah Tippett for seven years and £5 was paid with him. Two months later, 17 November 1713, Anthony Baily was apprenticed to John and Eleanor Macey for seven years, with friends finding apparel and a payment of £2 coming with the apprentice. Subsequent entries clearly indicate that such payments rapidly became common when arranging apprenticeships, and were not confined to pipemaker-apprentices. On 2 May 1715, for example, Edward Hale, son of Isaac Hale pipemaker, was apprenticed to a house-carpenter with friends to find apparel and a payment of £15 with the apprentice and on 18 October 1738 Joseph Macey, son of John Macey "late of Bristol" pipemaker, was apprenticed to a joiner with a payment of £14 - much higher sums than any made to a pipemaker when taking an apprentice and if paid by the fathers or their estates suggesting they had flourishing pipemaking businesses (the earlier C18, as is noted below, saw the height of prosperity of the Bristol pipemaking industry). The widespread adoption of such payments is also indicated by the appearance of trusts or charities which disbursed payments for apprenticeships and other deserving causes, such as lying-in mothers.

The first example of charitable grants to pipemaker-apprentices occurs 20 September 1716 when Thomas Owen was apprenticed seven years to Henry and Anne Hoar and £5 10s was paid with the apprentice, of which 10s was "the gift of the late Queen Elizabeth" (presumably Elizabeth 1, though there is no explanation for this intriguing gift; subsequent entries suggest the gift was probably through the Queen Elizabeth Hospital). The first example of a gift of money entirely from a charitable source to go with a pipemaker apprentice occurs 18 June 1717 when Richard Gill was apprenticed to Philip and Alice Calloway for seven years and £10 charity money "the gift of Edward Colston Esq" was paid with him. Thereafter, such payments become frequent, though £2-£3 is the most common amount until the later C18, when a number of up to £10 are noted.

A prominent source of funds was the charity of the Elizabethan Bristolian, Alderman Kitchen, which first appears assisting pipemaker apprentices 4 May 1721 by adding £2 to £4 from the "Parishoners of the Parish of St Mary Redcliffe" when William Reece was apprenticed to John and Eleanor Macey for seven years. In the first ten years in which Kitchen's assistance is noted for pipemaker apprentices (1721-30) eight grants, all of £2, were made. These 8 covered almost a quarter of the 34 pipemaker apprentices registered during this period. In all, grants from Kitchen's charity - all for £2 each - were given with 22 pipemaker apprentices between 1721 and 1795.[13]

Other sources of money are ex publico dono and "charity money", which occur several times; the Public Charity of the Society of Men(?) of the County of Somerset (£6 with Richard Chaffey A 29 June 1719 to John Squibb); John Harrison Esq (£5 with Thomas Spendar A 16 March 1719/20 to John and Eleanor Macey); Samuel Perry, baker, deceased (£5 with John Tippett A 6 November 1723 to Charles and Mary Hickes); the Parishoners or the Public Charity of the the Parishoners of St Michael Within and also of St Thomas (£5 with John Jones A 16 October 1725 to Mathew and Hester Shingler and £4 with James Stephens A 25 April 1726 to John and Charity Fryer); the Society of Antient [sic] Britons in the City of Bristol (£10 with John Thomas A 21 April 1733 to John Purnell); the Queen Elizabeth Hospital (£10 with John Newton A 29 June 1743 to William and Elizabeth Nicholas); the Gloucestershire Society in the City of Bristol (£2 with John Iles A 16 September 1747 to George and Elizabeth Ebbery); the parish of Clifton (£2 with Frederick Baker A 7 May 1751 to James and Rebecca Stephens); the gift of Mr Perry deceased to the poor of the parish of St Philip and St Jacob (£5 with Edward Hunt A 24 March 1757 to George and Anna Viner); the Somerset Society in Bristol (£10 with William Russell A 8 December 1757 to William and Elizabeth Commons) and the Grateful Society in Bristol (£10 with Isaac Davis A 15 January 1787 to John and Martha Okely). In the case of the Queen Elizabeth Hospital a number of grants were made by them from individual gifts made to that institution. Latimer (1893: 183) notes the annual feast of various county societies such as the Somerset and Gloucestershire societies noted above and that of the Antient Britons which comprised expatriate Welshmen, the subscriptions to such societies - those for Wiltshire and Herefordshire are also noted - being generally put, as here, to paying apprentices' fees. The Wiltshire Society's feast involved a procession to Christ Church to hear a sermon and a dinner in the Merchants' Hall. The Grateful Society was established in 1759, its promoters being supported by those who had been educated at Colston's School, and the proceeds of an after-dinner collection were put to apprenticing freemen's sons and relieving real distress (Latimer 1893: 280). Edward Colston, the prominent Bristol philanthropist, died in 1721 in his 84th year

(Latimer 1893: 129).

The payment of a grant with an apprentice appears to have been general in the C18. Two sources dated 1747 (Campbell 1747: 337, 1969 ed and Waller's *A General Description of All Trades* cited in Oswald 1970b: 230) note pipemaker apprentices being taken by London masters for sums up to £5, though in some cases they were taken free; and Oswald, checking the London apprenticeship rolls of about this period, notes (1970b: 230) that the minimum payment with a pipemaker apprentice seems to have been £2 and the maximum £20, figures which are low when compared with those of up to £80 being paid with tobacconist apprentices. Random figures given by Oswald for various English centres from the 1710s to the 1760s suggest these payments were widespread if not universal by this time.[14] When the Bristol pipemaker Anthony Baily and his wife Hester took their son Anthony apprentice 14 December 1743 the father received £10 from Colston's charity, indicating a father could obtain a grant to take his son apprentice.

There is some evidence that merchant apprentices in Bristol had to have a premium paid by the father to the master (McGrath (ed) 1955: xi, 1968 ed; McGrath 1970: 5-6) but pipemaker apprentices certainly did not; evidence from the Southampton apprenticeship registers indicates that at least some merchant apprentices there had a similar premium paid with them but there is no evidence for such payments with apprenticeships to handicrafts (Willis and Merson (eds) 1968: xvii-xviii). At Southampton it appears that grants were given with poor apprentices long before they became usual in private apprenticeship contracts, and this is said to be usual in England (noted in Willis and Merson (eds) 1968: lix). In sharp contrast to the Bristol evidence, however, or at least to the evidence from Bristol pipemaker apprentice entries, are the statements (noted in *op. cit.* xliii-xliv, lxvi-lxix) that funds for apprenticing poor children were being set up by wealthy individuals from the 1560s onwards and reached a high-water mark about the 1650s: such funds are being recorded in Southampton apprenticeships from the 1610s, but as noted above they certainly are not being recorded for Bristol pipemaking apprentices before the 1710s, after which time they rapidly became common. (No systematic attempt was made to examine the Bristol apprentice rolls on this point, but entries which noted pipemakers' sons being apprenticed into trades other than pipemaking were noted, and none of these had payments recorded before the 1710s either.)

The first third of the C18 saw the zenith of the pipemaking industry both numerically and, as will be discussed later, in trade. The first signs of an over-saturated market for pipemakers appear in this period too, the poll-books as noted below indicating an increasing number of Bristol pipemakers leaving the city and heading particularly to the London area from 1734 onwards. Indications of this also occur in the apprentice rolls, three cases of transfer of apprentice being recorded because the previous master had "failed and gone off" are recorded in this period. Joel Williams, F 1713, failed and left the city sometime between September 1716 and February 1719/20 (presumably near the latter date) for John Barkley apprenticed to Williams and his wife Margaret at the former date was transferred to John and Mary Purnell on the latter date. (Williams, however, was back in Bristol by 1722 according to the poll-book of that year, where he is listed as voting from St James parish. He is listed there as a pipemaker, but probably all this need mean is that his qualification to vote was that he had taken his freedom as a pipemaker; as is indicated later (pp528-9), the poll-books appear to have listed the trade in which the voter had taken his freedom and not necessarily his occupation at the time he voted.) The Tolzey book records John Jones, F 1733, "hath failed in his Circumstances & absconds for fear of being Arrested" when his apprentice John Hercules was transferred 31 May 1735 to James and Mary Jenkins - Jones's signed release of Hercules was dated 22 May suggesting he had fled immediately after that date. William Spencer F 1734 had failed and left the city some time before February 1738/9, apparently leaving his wife to carry on as best she could, for his apprentice Thomas Spencer (apparently a younger brother) was transferred at this time to James and Mary Jenkins and the Tolzey book entry indicates William's wife had continued after his departure but had subsequently died, leaving the apprentice unprovided for.

FIG 146 illustrates in bar-graph form the number of pipemaker apprentices taken in Bristol over the period 1619-1827. Although the loss of the apprentice rolls for 1658-59 and 1661-67 makes figures for these decades incomplete, it is quite clear that the active period of Bristol pipemaking, at least so far as taking apprentices goes, was from the 1650s to the 1730s, the decade 1681-90 having the most apprentices of all, 49. The later 1730s hint at a decline in the number of apprentices taken, and by the middle 1740s this decline is very evident. Thereafter, with the exception of the isolated year 1757, when five apprentices were taken including two on the same day to John and Susannah Lee, pipemaking apprenticeship declines very rapidly, and by the 1760s can be said to be for practical purposes dead. That the decline ca.1740 is sudden is suggested by a comparison between the number of those apprenticed for the decade 1731-40 and those for the decade 1741-50: while 30 are noted for the former only 13 are noted for the latter. The apprentice rolls do not indicate any reason for this sudden contraction, but as the section below dealing with trends in pipemaking visible in the freedom rolls will note, there is indeed a major contraction in the Bristol industry at this time. Whatever the reason, the effect may be guessed at: a lessening in the number of apprentices taken will result in a lessening in the number of future pipemaker freemen and journeymen and cause the ultimate demise of the industry as older workers die. Other evidence suggests that towards the end of the C18 this was indeed what was happening, though it was aided by the economic crises caused by the Stamp Act and the American Revolution; and when the Bristol pipemaking industry revived in the early C19 it owed very little to the now-dead laws about apprenticeship and freedom.

Only 3 of the last 14 apprentices taken, who covered the period 1764-1827, took their freedom as a result of having served out a pipemaking apprenticeship, though four others - Henry Wickham A 7 January 1765 to John and Susannah Lee and F 10 September 1774, Henry Carey A 13 January 1766 to Edward and Mary Sinderling and F 9 March 1768 (!), William Showell A 16 November 1776 to Israel Carey and F 19 April 1784, and John Adams A 2 April 1792 to John and Mary Carey and F 1 October 1812 - all took their freedom by virtue of having a father who was a freeman in another trade. This is probably a fair indication of the state into which apprenticeship as a means of training for a trade had fallen. Henry Carey's becoming free two and a quarter years after embarking on a seven years' apprenticeship is as much an insult to the tradition of apprenticeship as it is to that of freedom. The last pipemaker in the C18 to become free because he had served a seven years' apprenticeship to a pipemaker is James Huish F 6 February 1781 on the grounds he had been an apprentice of William Commons F 1756 (Huish's apprenticeship entry has not been found, but Commons died between 1757 and 1768). Thomas Cole, apprenticed 26 March 1764 to Israel Carey, took his freedom on grounds of apprenticeship 1 November 1774.

Apart from James Saunders who became free 13 October 1812 because he had been apprenticed to a "china painter", three pipemakers as noted above, and all from the C19, took their freedom by claiming apprenticeship to a pipemaker. They were Philip Guy A 20 April 1812 to William and Amelia Okely and F 14 August 1838, Henry Walker A 17 December 1824 to William and Elizabeth Thomas and F 20 August 1828, and Thomas George A 13 July 1827 to his grandfather Thomas George and F 11 August 1875. It is noteworthy, however, and more evidence is noted in the following section, that the new C19 pipemakers, though they owed little to their C18 predecessors, did make some initial effort to follow traditional procedures. Apprenticeship as a necessary prerequisite for entering a trade was dead, however, though entries did continue to appear in the apprentice rolls, certain firms such as Hill the shipbuilders being apparently very strong on the idea of having their apprentices registered in the traditional manner.

A breakdown of the home areas of the 347 pipemaker apprentices recorded is given in the introduction of the section below on home trade, but a breakdown by father's occupation can conveniently be given here, as it affords an indication of the classes from which pipemaker apprentices came.[15] This breakdown gives only a generalized picture, for it does not take into account the fact that 69% of the fathers worked in Bristol and obviously tended to have different trades from those who lived in predominantly rural areas. For example, 44 fathers were involved in agriculture in one form or another - 22 were yeoman - but few of these were in Bristol, while of the 26 fathers involved in maritime business a majority did come from Bristol, the second port in the country for most of the period in question. The breakdown by trades is as follows (where brothers are known to have been apprenticed the father is recorded twice; the occupations within each grouping are arranged in descending order of frequency and the most common in each has the exact number recorded after it):

CLOTH INDUSTRY	(weaver 24, tailor, woolcomber, clothworker, milliner, clothmaker, shearman, worsted-comber, feltmaker, fuller, dyer, mercer, bodice-maker, merchant tailor)	59
TOBACCO-PIPE MAKING INDUSTRY		46
AGRICULTURE	(yeoman 22, farmer, husbandman, gardener)	43

LEATHER INDUSTRY	(cordwainer and shoemaker 19, glover, whittawer, skinner, currier, spanish-leather dresser, tanner, translator*)	34
BUILDING INDUSTRY	(carpenter including house-carpenter 10, sawyer, mason, tiler including tiler and plasterer, brickmaker, joiner, timberman, stonecutter, glazier)	34
MARITIME INDUSTRY	(sailor-seaman-mariner 19, shipwright, lighterman, boatman)	26
METALWORKING INDUSTRY	(smith and blacksmith including one combining smithing and tobacco-pipe making 9, wireworker and wiredrawer, hooper, farrier, goldsmith, coppersmith, gunsmith, pinmaker, brazier, tinplatemaker)	22
VICTUALLING TRADE	(baker including a gingerbread maker 6, brewer, innkeeper and innholder, butcher, cook, miller, saltmaker, victualler, grocer**)	16
LABOURER		12
TRANSPORT	(porter 7, carrier, hallier)	10
TOBACCO INDUSTRY	(tobacco-roller 5, tobacconist, tobacco cutter)	8
COAL INDUSTRY	(collier and coalminer 6, coaldriver)	7
OTHER TRADES	cooper 8, glassmaker 2, surgeon 2, ropemaker 2, cork-cutter 1, brushmaker 1, perukemaker 1, wheelwright 1, turner 1, scrivener 1, exciseman 1, merchant 1, gentleman 1 TOTAL	23
OCCUPATION NOT STATED		6
PAUPER INFANT		1
		347

These figures probably give a fair idea of the sorts of crafts in the same general economic and social class as pipemaking, as well as indicating the major trades in the South-West. Nor surprisingly, the pipemaking industry itself supplied a fair proportion - 13% - of its apprentices, and 41 of the 46 recorded were sons of Bristol pipemakers. Of these no fewer than 18 were taken during the period 1671-85, the time when the "second generation" was reaching apprenticeship age after the founding of the guild in 1652. Of the five sons of non-Bristol pipemakers three came from Somerset about this same period, two in 1670 and one in 1692; one came from

---

*"Translator" in the C17 can mean either someone who carried material or someone who changes or alters items, especially one who mends old shoes (so *OED*). Willis and Merson (eds) 1968: *passim* take it to mean the latter and make it synonymous with "cobbler".

**Assuming "grocer" to mean a trader in spices, dried fruits, sugar, etc. rather than simply a wholesale dealer or merchant.

Hereford in 1714, which was the time of greatest prosperity for the Bristol pipe industry (see below, sections on trade); and one, rather surprisingly, from London in 1740, a time when the Bristol pipe-industry was beginning to decline and its pipemakers beginning to go to London in search of work (see section below on poll-book evidence).

The largest single industrial group supplying pipemaker apprentices, however, was that of the cloth industry, with 59 individuals or 17%. This indicates the cloth industry, founded in medieval times, was still of major importance in Bristol and the surrounding areas, and the listing of 24 weavers and 14 tailors suggests this was the sort of social class into which pipemakers fitted - that of small, independent, and seldom rich craftsmen working with a few assistants, a poorer-class artisan. It is probably significant, for example, that though coalmining was also an important industry in the surrounding areas of Gloucestershire and Somerset only 6 miners had sons apprenticed to pipemakers: one suspects miners belonged to a social class with which the humble but respectable pipemaker had little contact. Similarly, there can have been no shortage of labourers in the region but only 12 labourers' children were apprenticed to pipemakers, again suggesting labourers belong to a class below that of pipemakers.

Other industries which contributed an appreciable number of apprentices - the leather-using and building trades, each contributing 10% - would fall into the same broad category as the cloth industry: crafts of the independent artisan at the poorer end of the social scale. The relatively large number of apprentices from a farming background - 43, or 12%, including 22 whose fathers were yeoman and 10 who were farmers - calls perhaps for a different explanation, but most of these came from country areas and probably reflect the attraction of the metropolis as opposed to the limited opportunities on the land for younger children in a numerous family and the desire to obtain the relative security of a trade for these children.

As would be expected, the number of occupations which could be classified as upper social class of professional are minimal in the extreme. The single "gentleman" listed - the father of William Jones apprenticed 28 April 1668 to one of the William Evanses - was dead by the time his son was apprenticed and had lived in the wilds of Brecknockshire; in all probability the father had been a yeoman farmer rather than a gentleman in the aristocratic sense of the term. The mercantile crafts have only four representatives: a mercer from Monmouthshire, Morgan Jones whose son Walter was apprenticed 14 January 1628/9 to Samuel and Margaret Morris; a Bristol merchant tailor Thomas Hiscox (deceased) whose son Thomas was apprenticed 11 May 1687 to John and Cicily Tucker; a grocer, Walter Lloyd, from Monmouthshire whose son Isaac was apprenticed 13 March 1693/4 to Edmond and Christian Sinderling; and a merchant, Samuel Wilkins, from Bristol whose son Ebenezer was apprenticed 23 October 1723 to John and Mary Purnell. Only two of these were Bristolians, a clear indication of the rarity with which these crafts crossed social paths with those of pipemakers (neither Hiscox nor Wilkins is listed in McGrath (ed) 1955, 1968 ed or Minchinton (ed) 1957).

The single occurrence of a goldsmith's son - John Wall, Bristol's first pipemaker apprentice, apprenticed to Richard and Anne Berryman 26 November

1619 - is interesting. John Wall's father Thomas is presumably the Thomas Wall, goldsmith, noted in Latimer (1900: 12-13) in 1597 and 1598 as making the Bristol copper farthings, coins which were being produced from 1578 to 1604. The Corporation in 1598 had to ask Wall to buy back over 32,000 of these tokens because over-production by the Corporation had resulted in a market crash, and Wall had to be paid £33 16 6 (equivalent to about three years' profits to the city) for this. This suggests Wall may have been quite well-to-do (how long he was producing these farthings is not stated), but Willis and Merson (1968: xxxv-xxxvi and xxxvi n.1) caution against assuming goldsmiths of this period being wealthy, noting that it was only in the C17 that the trade of goldsmith was changing from a handicraft to a mercantile craft. They instance the only Southampton goldsmith mentioned in the early C17 as a comparatively humble man whose tax assessments do not suggest wealth, and compare him with another in the later C17 who became mayor of the city. Another craft Willis and Merton note as changing character during the century was that of surgeon, which was changing from a manual craft to a profession: two surgeons are noted among the parents of Bristol pipemaker apprentices, one from Gloucestershire whose son was apprenticed in 1675 and another from Bristol who was dead by 1706 when his son was apprenticed. Scrivener and exciseman - there are single examples of each as the father of a Bristol pipemaker apprentice - could be regarded as professions, but neither is likely to have been of much social standing (neither is listed among the trades to which youths in Southampton were apprenticed).

An example, however, of the sort of information on social status not available from a casual examination of family occupation, nor even expected after more detailed evidence is available, is that fortuitously provided by research on his family's history by Brig. G.A. Viner of Sussex (in litt. 8 and 28 August 1974). Brig. Viner is a collateral descendant of George and Anna Viner who made pipes in Bristol over the period 1747-1805 and some of whose products reached North America (see 6: VII(b)(4) below), and his research is worth recounting here to show the sort of modification needed to one's opinions on family status when these opinions are based largely on apprenticeship entries.

The Viners were a south Gloucestershire family, probably in the cloth trade for many generations. The earliest known Viner, John (D ca.1494), married a woman from Bradford-on-Avon, a cloth-manufacturing town, and by the first half of the C17 Richard Viner of Stroud is a clothier and a Trustee of Stroud Parish Charity. The next two generations are also clothiers, Richard's son Robert living at Stroud and Pitchcombe (at which latter he was a Churchwarden) and Robert's son George living at Pitchcombe (where he too was a Churchwarden) and Painswick. From George descends Brig. Viner; from George's younger brother John descends George Viner the Bristol pipemaker. John was apprenticed as a joiner to his uncle by marriage, John Blatchley of Bristol, and after the latter's death to another Bristol joiner; his son, also John, was also a joiner in Bristol, and he is the father of pipemaker George Viner.

Although George's father and grandfather are both joiners "of Bristol", George was baptised (and therefore almost certainly born) at Painswick, suggesting the Bristol branch of the family kept in contact with its south

Gloucestershire cousins (who George's mother was is unknown; she may have been from south Gloucestershire). George's wife Anna Watkins is a descendant of the Fletcher family one of whom had married Robert Viner, George's great-grandfather; Anna's father was of Stroud and her mother a daughter of George Wick of Wickstreet near Painswick, and her marriage to George took place at Stonehouse. All this again suggests contacts with south Gloucestershire were continued by the Bristol Viners. However, the especially interesting item is that Anna brought her husband Wickstreet House, suggesting she was the heiress (through her mother) of a local gentry family; and on George's death ca.1775 the house reverted to her. On her death in 1810 the house went to their son Edmund Wick Viner (note the incorporation of the maternal grandmother's maiden name), who lived there with his wife and maiden sister until both he and the sister died in 1831. Edmund Wick Viner had no children; his wife died in 1856 and this ended, so far as is known, that branch of the Viner family.

The point here, however, is that though George Viner might have deduced as a modestly prosperous pipemaker from other evidence - he exported to North America - one would never have guessed his wife was an heiress; and though Anna Viner continued her deceased husband's business throughout the darkest days of Bristol's pipemaking industry in the last quarter of the C18, when only a handful of Bristol pipemakers survived, and might therefore be considered to be at least a successful businesswoman (her pipes too are known from North America), one would never have suspected that a woman who appears to have remained in the pipemaking business - an arduous trade, especially in Bristol at this time, as is attested by her contemporary, John Frederick Bryant jr, a Bristol pipemaker turned poet who published his memoirs in 1787 (Bryant 1787: vii-xxxiii) - until she was 74 (she is last recorded in business in 1805; she died five years later) owned a country seat where, moreover, her son and daughter were apparently able to live as gentlepeople of leisure until their deaths in 1831.

One point which may be noted briefly in Chalkley's contention (discussed in 2: IX) that among the crafts whose techniques were associated with that of pipemaking were glass-making and pewtering. As indicated when discussing this point, Chalkley is wrong here as he is on nearly every other assertion he makes, and the occupations of Bristol pipemaker apprentices' fathers certainly offer no corroboration to Chalkley's allegation, no pewterers being noted and only two glassmakers. (This last point is perhaps a little surprising when one considers that Bristol had an important glass-making industry - one might have expected, purely on a random basis, more glassmakers' sons.)

Some comparison between the background of Bristol pipemaker apprentices and apprentices of Bristol merchants can be made, for McGrath (1955: 276-7, 1968 ed) has noted the fathers' occupations in the 538 cases where this has been listed for those apprenticed for the periods 1600-30 and 1670-90.

As would be expected, the merchant trade itself supplied a considerable number, 127 or 24%, almost double the proportion of pipemakers' sons who followed their fathers' footsteps. However, as with the pipemaking trade, the largest single group supplying apprentices was not that of the trade itself. In the case of pipemaking it was the cloth industry with 17%, but in the case of merchant apprentices it was families describing themselves as gentlemen (including armiger) which supplied the largest single number, 138 or 26%. Comparing this to the single gentleman - and a deceased provincial one at that - listed among the fathers of pipemaker apprentices one sees at once the vast social gulf between the two trades. Yeoman was given as the occupation of 53 fathers of merchant apprentices, or 10%, and husbandman contributed a further 29, or 5%: the total here, 15%, is surprisingly close to the 12% (which also included farmers and three gardeners, occupations not recorded for fathers of merchant apprentices) for pipemaker apprentices, but the answer here must undoubtedly lie in the term yeoman covering a broad range of the landed farming class - the lack of the occupation farmer among the parents of merchant apprentices would agree with this, farmers being of a lower social class than yeoman, while gentleman ranked above yeoman.

The cloth industry, as befits its position in the regional economy, contributes a share to those aspiring to become merchants - 67 sons of those involved in various aspects of the trade, or 12% - but other industries which had contributed significantly to the pipemaking craft, such as leather and building, are conspicuously low on the list of occupations of merchant apprentices' fathers. Only 11, or 2%, of the former were noted, and only 7, or 1%, of the latter, a social commentary which is not surprising. Of the definitely lower-class occupations, only one labourer's son and one coalminer's son are recorded in the two periods covered as being apprenticed to merchants.

As noted in 2: VII, Chalkley alleged that until ca.1745 English pipes were made from a clay mix to which ground-up fired pipeclay was added and that as breathing the dust from this ground-up clay produced lung diseases apprentices were often orphans and foundlings. Chalkley alleged his contentions were borne out by the Bristol apprenticeship rolls showing orphans and foundlings being apprenticed to pipemakers. Chalkley, as has been observed more than once before, can be proved inaccurate on almost every point he makes, and as indicated in 2: VII there is no evidence to confirm his assertion that ground-up fired pipeclay was added to the mix nor indeed that it was used extensively at all in any part of the English pipemaking process. It is therefore not surprising to find that Chalkley's claim to be supported in his findings by the Bristol apprentice rolls also turns out to be unfounded.

Without an elaborate study of apprentices registered for trades other than pipemaking it is difficult to say what proportion of youths without a parent could be considered normal to whatever period was being studied, and in any case while the apprentice roll entries indicate whether the father was alive or dead they rarely mention the mother so there is usually no means of telling whether the apprentice had lost both parents or only one. Further, even had he lost both, an apprentice might be adequately provided for by friends or relatives - the instances noted above where "friends" were to provide clothing for the apprentice during his term probably indicate either that both parents were dead or that they or a surviving parent were in circumstances where they were unable to provide for their children. Considering life expectancy in the C17 and C18 in general it would be very surprising if orphaned children did not appear regularly in the apprentice rolls; in fact 102 of the 347 pipemaker apprentices listed, or 29%, are recorded as having lost their father by the time they were apprenticed, but this is probably not an unduly high proportion for the time and the generally artisan or labouring classes involved. There are few instances of entries which would imply severely impoverished children. The payments made from the early C18 to masters on taking apprentices to pipemakers for as already noted such payments were becoming standard in the C18 and were restricted neither to pipemaker apprentices nor to Bristol.

The only specific evidence for the apprenticing of poor children to pipemakers comes with a group of entries rather curiously all dated to about the same time. In all cases apprenticeship is made with the consent of either the Overseers of the Poor or the Guardians of the Parish or of both, and in all cases save one (where the apprentice is referred to as a pauper child) the father is referred to as being dead. Seven such youths are apprenticed pipemakers over a period of 35 months and they represent almost a third - 7 out of 23 - of the total apprenticed pipemakers of that period. John Masey, the pauper child, is the only such noted in the entire list of Bristol pipemaker apprentices and is presumably a foundling - in every other case the name of the father is given. The seven are as follows:

Ambrose Flower, A 23 November 1688 for seven years to Isaac and Sarah Hale;

Benjamin Cole, A 9 April 1689 for seven years to Thomas and Anne Hickes;

Thomas Addison, A 6 May 1789 for eight years (with 5s payment for the last year) to James and Anne Abbott;

Edward Watts, A 4 September 1689 for seven years to Jane Randall;

Henry West, A 23 September 1689 for seven years to Anne Smith;

Richard Huett, A 4 May 1691 for seven years to Richard and Anne Nunney;

John Masey, A 31 October 1691 for seven years to John Hollisteed and his wife.

The significance of this concentration of poor apprentices is unknown, but it is a feature restricted to this period, and it does not occur again.

Henry Walker, apprenticed 17 December 1824 to William and Elizabeth Thomas, is described as the "son of Thomas Palmer late of Bristol labourer", an entry which suggests he was illegitimate. There are several superficially similar entries in the C17 apprentice rolls, but they are invariably of Welshmen whose surnames are the same as their fathers' christian names, and this probably reflects the tradition formerly common in Wales that a son took his father's first name as his surname. Examples of this are John Williams apprenticed 27 March 1624 to Samuel and Elizabeth Lewis, who is described as the son of William Davye late of Caerleon; John Griffon or Griffen apprentice to James and Jane Fox 2 March 1668/9 and described as the son of Griffen George of Pembrokeshire; and Paul Thomas apprenticed 26 June 1680 to William and Mary Evans and noted as the son of Thomas Rosser also from Caerleon.

(Reference has been made from time to time in this section and elsewhere in this chapter to the recent study of the Southampton apprenticeship records by Willis and Merson. This has an interesting and most detailed analysis of features and trends of apprenticeship there, and while some of it is not directly germane to the study of a specialized group within the apprentice records of another city, such as Bristol pipemaker apprentices, it provides a useful study for background reading as well as some parallels or divergences worth noting in this examination. See also Patterson 1966: 23-25, 35-36.)

SECTION IV:
TRENDS IN PIPEMAKING FREEDOM AS SEEN IN THE BURGESS-ROLL ENTRIES, 1640-1877

Freedom was traditionally the right granted craftsmen by a corporation allowing them to practice their trade within the area of jurisdiction of the corporation. As has been noted in Section II above, the effectiveness of freedom as a means of regulating city trades was declining throughout the C17, particularly in the second half, all over England and by the end of the century its control was largely lost, many craftsmen practicing their trade and ignoring attempts to compel them to take their freedom. Freedom, however, was a standard, and very frequently the only, means of becoming eligible to vote at parliamentary elections: this was the case in Bristol and it remained so after the Reform Act of 1832 when burgesses (that is, freemen) and freeholders were joined - in boroughs - by all male householders paying £10 or more per year in rent (Latimer 1887: 2, 185). The register of electors for Bristol in 1832 following the Reform Act contained 5,301 burgesses, 862 freeholders, and 4,215 householders (Latimer 1893: 185), the addition of the last-named increasing the total voting population by almost 70 per cent.

It was not until the Reform Act of 1867 that in the boroughs householders who paid poor rates and lodgers who paid £10 or more in rent were enfranchised, an enlargement which in effect gave artisans and shopkeepers the vote for the first time. Freedom therefore retained in Bristol a practical value well into the C19, long after it had ceased to have any other tangible importance. (According to Latimer (1893: 28-30) the early Bristol charters and in particular that of Edward III intended the city government to be a corporation elected by the burgesses but later grants from the crown had enabled the corporation to acquire "the right of self-election and become wholly irresponsible." By the C17, therefore, obtaining one's freedom was of no significance to local elections, there being no such elections.)

Examination of the Bristol burgess books reveals that from before 1700 round-ups of eligible persons who had not taken their freedom were made before elections. The zeal with which potential freemen were sought out probably varied for a number of reasons, one certainly being whether there was a contested election, but it became progressively more noticeable during the C18; it was not restricted to Bristol either, but occurred in other places where freedom was a prerequisite for voting (noted in Willis and Merson (eds) 1968: xvi n.2). The October 1812 general election in Bristol witnessed some particularly spectacular scenes of vote-buying by candidates hunting for potential freemen, and these are vividly described by Latimer (1887: 51-3). When in a normal year at this time the average number of freedoms taken averaged no more than 50 a year, two of the four candidates paid between them ca.£2,500 to put 1,100 freemen on the burgess rolls (one of them had spent over £15,000 to win the seat at the by-election four months previously) and a third candidate entered 600 freemen. Among these freemen were 75 who had obtained the qualification by marrying the widows of deceased freemen, many of which marriages were said to have been terminated at the church doors on leaving. Thirteen pipemakers took their freedom during the period 1-13 October 1812, six of them by virtue of marrying daughters of non-pipemaker freemen and one by marriage to a widow of a non-pipemaker freeman. A further two claimed their freedom on the grounds they were sons of non-pipemaker freemen. Two became freemen because they were sons of pipemaker freemen and one because he had married the daughter of a pipemaker freeman. None claimed freedom by apprenticeship to a pipemaker, though one did so on the grounds he had been apprenticed to a "china painter". These figures clearly indicate the state to which the meaning of freedom had degenerated.

However, this is to anticipate the discussion, for in fact a progressive disintegration of the meaning of freedom is discernible over the two centuries and more that pipemakers took their freedom. In a sense the change is summed up in contrasting the first pipemaker burgess, William Lewis F 1640, and the last, William James F 1877, for whereas the former took his freedom by apprenticeship the latter did so by patrimony from a father who had been a tiler and plasterer, a trade not remotely connected with pipemaking.

One method of determining the change in meaning of freedom is in fact to examine the grounds on which candidates claimed their freedom. As discussed earlier, the normal method was to have served an apprenticeship but patrimony (being the son of a burgess) or marriage to the widow or daughter of a burgess were accepted, the latter with certain conditions. In special cases freedom could be conferred by the Council, as was done when the pipemakers' guild was founded.

From the 1660s, by which time the guild was on a sound footing and the trade flourishing, until the 1730s the overwhelming majority of pipemakers becoming freemen claimed on the orthodox grounds of having been apprenticed to a pipemaker. There is a small but steady stream, tending to increase as time goes on, of pipemakers taking their freedom by virtue of their father being a freeman pipemaker, and a very thin scattering of individuals claiming freedom through marriage to a pipemaker's daughter, or through patrimony but with a non-pipemaker freeman father, or through marriage to the daughter of a non-pipemaker freeman (plus one case, in 1662, of the council freedom). In all, out of 206 pipemaker burgesses recorded between 1661 and 1740, 164 or ca.80% served an apprenticeship. Twenty-nine, or 14%, claimed their freedom on the grounds that their father was a pipemaker and another six - 3% - had married a pipemaker's daughter.

It is thus clear that for the first 90 years of organized pipemaking in Bristol the trade was closely organized round the traditional concept of apprenticeship, with pipemakers' sons, who regardless of whether they were apprenticed must have received a practical training from their father, making up most of the rest of the pipemaking community. Of the six who married pipemakers' daughters three may have taken over their father-in-law's business, for no other family successor is noted. Robert Browning, F 19 October 1669, married Sarah daughter of Edward Battle;

Richard Abbots, F 20 February 1689/90 married Mary daughter of Richard Nunney; and Robert Ducy, F 27 July 1727 married Richard Abbots's daughter Susannah. In Nunney's case he did have a son Robert apprenticed to him and his wife Anne 29 January 1676/7 for seven years but he never took his freedom and probably died during his apprenticeship. The three others married into businesses where their brother-in-law or brothers-in-law would normally have inherited the father's business, but this does not of course prevent partnership. George Powell F 31 January 1704/5 married the daughter of John Lewis, Elizabeth, whose brother Francis became free in 1691 and who continued until at least 1722 and whose mother Susannah had taken over her dead husband's business by 1696 and was still active in 1707. Thomas Thomas, F 24 October 1739, married Susannah daughter of Henry Edwards and brother of Jonas Edwards sr free 1722, which latter had three sons all become pipemaker burgesses in 1747. Thomas Waddam appears to have been actually apprenticed 20 March 1732/3 to John and Esther Wickham but took his freedom 14 November 1739 - in time for the election at that time and eight months before his apprenticeship would have ended - by having married Mary daughter of John Poyte II (F 1707) and sister of John Poyte III F 1739. Neither Powell nor Thomas nor Waddam are recorded taking apprentices, but Powell was noted as a pipemaker in the 1722 and 1734 polls, and Waddam at those of 1739 and 1754 and it is probable they became journeymen in their in-laws' or someone else's businesses. Browning and Abbots did take apprentices indicating they were certainly active, and Ducy, perhaps anticipating the decline which was about to set in on the Bristol pipe industry immediately set up business at the hamlet of Tellisford in Somerset ca.6-1/2 miles SSW of Bath where he took an apprentice in 1729 and had a long-lived business, being noted as a country voter in the 1734, 1739, and 1754 Bristol polls.

However, even during this period there are signs of a loosening of the organization. In the second half of the C17 pipemakers generally, though not always, apprenticed their sons to the fathers, so that the sons took their freedom by apprenticeship and not by patrimony. With one late exception the last pipemaker's son to become a burgess in this manner, however, was Abraham Williams 19 March 1708/9, who had been apprenticed to his mother Susannah widow of Roger Williams F 1668 on 14 January 1701/2. From the beginning of the C18 until 1740, when there is a puzzling change to pipemakers' sons being once more apprenticed but not to their fathers (discussed below), pipemakers' sons, though doubtless still being trained in the business by their father, took their freedom by patrimony. (The exception referred to above is Anthony Baily jr, who was apprenticed 14 December 1743 to his father Anthony sr and his wife Hester.) The increasing number of pipemakers becoming burgesses by patrimony noted above no doubt reflects this, for example 6 out of 22 pipemaker-burgesses in the decade 1711-20 and 9 out of 40 in the decade 1721-30, but it should be noted that the decades from 1681 to 1740 saw the largest number of pipemakers taking their freedom in any case and that from ca.1680 onwards sons of the founding generation of pipemakers would be reaching the age for taking their freedom. From the 1740s, however, sharp changes appear in the pattern of freedom-taking. In the first place, the number of pipemakers taking their freedom, which had averaged 30 a decade between 1681 and 1740 and been as high as 40 in 1721-30, drops suddenly to an average of 15 for the decades 1741-90, there being for example 35 free in 1731-40 and only 14 free in 1741-50. Secondly, the pattern of claims for freedom changes, and apprenticeship as a reason declines much more sharply than even the overall drop in burgesses. For example, 26 of the 35 pipemaker burgesses recorded for 1731-40 took their freedom by apprenticeship while only 6 of the 14 recorded for 1741-50 did so for this reason.

The change is best seen when comparing groups of those taking their freedom immediately before an election. Of the 19 pipemakers taking their freedom between 1 October and 15 November 1739, 13 did so by apprenticeship, the remainder being equally divided among those claiming through a pipemaker father, those who had married the daughter of a pipemaker, and those whose father was a burgess in another trade. By the time of the next election, in 1747, the breakdown of the nine pipemakers free between 23 and 29 June was very different: only one took his freedom by apprenticeship while six did so by citing a pipemaker father, one by marriage to a pipemaker's daughter and one through a non-pipemaker freeman father. Curiously, each group included people who had been apprenticed to a pipemaker but had chosen to claim their freedom through other means. Thomas Wadham F 1739 through marriage to Mary daughter of John Poyte II (see above) appears to have been the same Thomas Wadham A 20 March 1732/3 to John and Esther Wickham for seven years; and Jethro Phillips, A 16 September 1732 to John and Anne Pearce for seven years and turned over to William and Mary Nicholas 14 July 1734 for the remainder of his term, was certainly the Jethro Phillips who took his freedom in 1739 through his father being a freeman tailor. Samuel Richards I, A 2 April 1740 to Rebecca Arthurs for seven years, was certainly the same Samuel Richards who took his freedom in 1747 on the grounds his father was a pipemaker Richard Richards; while John Edwards I, A 8 September 1740 to William and Susannah Pearce for seven years, was the John Edwards who became free two-and-a-half months before his apprenticeship was due to finish in order to be eligible for the 1747 election because his father had been pipemaker Jonas Edwards I. John Bateman, A 22 February 1734/5 to William and Susannah Nayler for seven years is presumably the John Bateman I free 1747 by virtue of having married Elizabeth a daughter of pipemaker John Fryer; and John Newton I A 5 March 1732/3 to John Squibb (no wife mentioned) for seven years was the John Newton who became free in 1747 through his father being a freeman weaver. Wadham appears in the 1739 and 1754 polls as a pipemaker, Phillips in the 1739 polls and Bateman and Newton in the 1754 polls, while the Richards family continued to make pipes into the C19; but nothing more is known of Edwards, who did not even note in 1747 though his becoming free at this time was clearly for that purpose[16] - in reality all with the possible exception of Richards may have failed or abandoned their apprenticeships. In any event their appearance as pipemakers indicate guild organization was failing, and the manner in which and the reason for which they obtained their freedom are other examples of the disrepute into which freedom was falling.

The 1747 figures may be extreme, for the figures for the 1754 election indicate five taking their freedom through apprenticeship and five for other reasons, and those for the 1756 by-election show all five who took their freedom did so by virtue of apprenticeship. However, of the seven who took their freedom for the 1768 election only two did so by apprenticeship whereas three did so because their fathers were pipemakers, one because he had married the daughter of a pipemaker, and one because his father had been a non-pipemaker freeman - a sergemaker - and this sets the pattern for the rest of the elections up to the 1832 Reform Act. Of the 15 pipemakers who became free for the 1774 election only 5 did so on grounds of apprenticeship; for the 1780 election, none out of the five; for the by-election of 1781, one out of five; and for the 1784 election, none out of eight. In fact, with the exception of three who took their freedom in the C19 by apprenticeship and who will be discussed later, James Huish F 6 February 1781 and still alive 1812, who must have been apprenticed to William Commons sometime between 1756 (when Commons became free) and 1768 (when Commons was noted as deceased), was the last pipemaker to become a burgess by apprenticeship.

There is one curious exception to this trend to claiming freedom by means other than apprenticeship. As noted earlier, pipemakers' sons from the beginning of the C18 were no longer being apprenticed to their fathers but were taking their freedom by patrimony, though no doubt their fathers were still training them in the craft. From 1740, however, there is a steady trickle of apprentices - 7 out of a total of 44 recorded from 1740 until the end of the century - who are sons of pipemakers and who are apprenticed, not to their fathers, but to other pipemakers. There is even one case of a pipemaker's son being apprenticed to his father during this time - Anthony Baily jr, A 14 December 1743. The seven apprentices are: Samuel Richards I, son of Richard Richards and apprenticed to Rebecca Arthurs 2 April 1740; John Edwards I apprenticed to William I and Susannah Pearce 8 September 1740; John Phillips, son of Maurice Phillips and A 13 April 1741 to John and Hester Wickham; Robert Carter, son of James Carter and A 20 August 1757 to John and Susannah Lee; Peter Quarman jr, son of Peter Quarman sr and A 23 November 1763 to George and Elizabeth Ebbery; Henry Wickham, son of Josias Wickham and A to the Lees 7 January 1765; and John Lewis II, son of Isaac Lewis and A 13 December 1783 to John Carey.

These seven are a mixed bag. Richards and Edwards, as already noted, took their freedom in 1747 by patrimony, while Phillips was discharged 29 November 1744. Only the fathers of Edwards and Phillips are specifically noted as being dead when their sons were apprenticed, though several of the others could have been and in two cases the fathers were alive but apparently working in London. In one case, that of Quarman, the father is not recorded in the freedom rolls - the latter must have been the Peter Quarman A 2 March 1732/3 for seven years to John Squibb and turned over to William and Mary Foord 22 May 1739 and about whom nothing more is known unless he was the Peter Quarman F 1747 by patrimony as founder. The last reference to Richard Richards is in the 1739 poll-book, and the last reference to James Carter is in the 1754 poll-book. In the cases of Wickham and Lewis their fathers were certainly alive when the sons were apprenticed but the 1781 poll-book records Isaac Lewis being in London and sometime between 1754 and 1774 Josias Wickham also went to London, for the poll-books record him in Bristol in the former year and London (where he is also recorded in the 1784 poll-book) in the latter.

However, none of these seven need have been apprenticed to obtain their freedom, and a possible explanation for this apparent return to more honest methods may be that these people were genuinely interested in becoming working pipemakers and did not have their fathers' businesses available to them to train in - they may have been journeymen's sons. As indicated elsewhere (Sections III above, VI and VII(b)(4) below), there appears to have been a retrenching of the industry within well-established concerns after ca.1740 and these seven cases (and Anthony Baily jr who was apprenticed to his father) may reflect this. The increasing use of journeymen in such firms, for which there is evidence, would reduce the numbers of apprentices taken, but it would still be as important, perhaps more important, to train members of the family to be practicing pipemakers.

A breakdown by decade of the various methods of obtaining freedom yields an interesting observation on the decline of the Bristol pipe industry (a complete breakdown by decade from 1631 to 1880 is given below). After 1740 apprenticeship as a means of becoming a pipemaker was dying, as both the above figures and the preceding section dealing with the apprentice rolls indicate, and the trade apparently retrenched itself in family business: between 1741 and 1790 of the 76 pipemaker burgesses the largest single number - 30, or 39% - took their freedom by claiming a pipemaker father, and a further 11, or 14% by having married a pipemaker's daughter, while 27, or 36%, became free through apprenticeship. The overall percentage of those becoming free for orthodox reasons - 89% - is therefore not far off the 97% for the period 1661-1740, but patrimony and marriage now account for 53% as compared to 17%.

The following is a breakdown by decade and method of taking freedom:

Decade	A	B	C	D	E	F	G	H	Total
1631-40	1	-	-	-	-	-	-	-	1
1641-50	2	-	-	-	-	-	-	2	4
1651-60	6	-	3	-	-	2	-	8	19
1661-70	13	1	1	1	-	-	-	1	17
1671-80	9	1	-	-	-	-	-	-	10
1681-90	23	2	-	1	-	-	-	-	26
1691-1700	29	3	-	-	-	-	-	-	32
1701-10	18	4	-	1	-	1	-	-	24
1711-20	16	6	-	-	-	-	-	-	22
1721-30	30	9	-	1	-	-	-	-	40
1731-40	26	3	2	2	-	2	-	-	35
1741-50	6	6	1	1	-	-	-	-	14
1751-60	10	2	1	3	-	-	-	-	16
1761-70	5	3	1	3	-	-	-	-	12
1771-80	5	14	1	1	-	1	-	1	23
1781-90	1	5	1	3	-	2	-	-	12
1791-1800	-	-	-	-	-	-	-	-	0
1801-10	-	2	1	-	-	4	-	-	7
1811-20	-	2	2	1	-	6	2	-	14*
1821-30	-	2	1	-	-	6	-	-	9
1831-40	2	4	3	-	-	-	-	-	9
1841-50	-	-	-	-	-	-	-	-	0
1851-60	-	-	-	-	-	-	-	-	0

1861-70	-	-	-	-	-	-	-	-	0
1871-80	1	-	1	-	-	-	-	-	2
	203	69	19	18	0	24	2	12	348*

A - apprenticed to a pipemaker
B - son of a pipemaker freeman
C - son of a non-pipemaker freeman
D - married daughter of a pipemaker freeman
E - married widow of a pipemaker freeman
F - married daughter of a non-pipemaker freeman
G - married widow of a non-pipemaker freeman
H - special case

* Totals include one person who took his freedom as a pipemaker on the grounds he was apprenticed to a "china painter".

No pipemakers took their freedom during the decade 1791-1800, nor indeed for the 20 years between 1784 and 1804, and when pipemaker-burgesses again appear they belong largely to a new generation reestablishing the industry. Of the first 7 pipemakers to become free in the C19 - covering the period 1804-09 - 4 did so by citing marriage to the daughter of a non-pipemaker freeman and one by citing a non-pipemaker freeman father. The remaining 2 were sons of pipemakers. Out of the 41 appearing between 1804 and 1877 (39 of them between 1804 and 1839), only 3 - 2 in the 1830s and one in the 1870s - become free by apprenticeship to a pipemaker. Ten take their freedom through a pipemaker father and one by having a wife a pipemaker's daughter, but 16 do so because they married the daughter of a non-pipemaker freeman, 8 because their father was a non-pipemaker freeman, 2 because they married the widow of a non-pipemaker freeman, and one because he had been apprenticed to a non-pipemaker freeman. In other words, 35% of those pipemakers becoming burgesses during this period did so by apprenticeship to a pipemaker or through family connections while 65% used quite extraneous reasons obviously purely as a legal convenience.

It is interesting to note, however, that some of this new tradition of pipemakers falls in with the cycle observed after the first founding of the industry in the C17. By the 1830s the second generation is appearing with four pipemakers - Thomas Appleford F 1830, Samuel Roberts, Thomas Roberts, and Edward Thomas all F 1838 - claiming their freedom because their fathers had been pipemakers, though in each case the father had claimed his freedom on poor professional grounds. Similarly, one of the three pipemakers becoming free through apprenticeship - Henry Walker F 1838 - had been apprenticed in 1824 to William Thomas who had become free 1807 through marriage to a millwright's daughter, suggesting that the new pipemakers attempted, however fitfully, to re-establish known traditions (the other pipemakers to become free in the C19 were Philip Guy F 1838 who had been apprenticed in 1812 to William Okely F 1809 whose pipemaking antecedents go back into the first half of the C18, and Thomas George apprenticed 1827 to his grandfather Thomas George and F 1875, the pipemaking antecedents of whose family went back to a similar date).

By the early C19, however, freedom even as a means of becoming enfranchised apparently held little interest for most Bristol pipemakers.

Nearly all those appearing in Matthews's 1810 directory were burgesses, but by 1820 only a minority of those listed had their freedom, and as the refounded industry expanded into the 1850s in its new ghetto beyond Lawford's Gate its workers no longer bothered to claim their freedom on even the most artificial grounds.

FIG 143 illustrates in bar-graph form the number of Bristol pipemakers taking their freedom each year during the period 1640-1877. The first point to note is that while the number of new burgesses varied considerably from year to year before ca.1740 there were few years without at least one pipemaker taking his freedom, whereas after that date there was an increasing tendency for pipemakers to take their freedom at irregular but well-spaced intervals. Traditionally, freedom was considered the culmination of one's training in whatever trade one had chosen, a graduation in effect; this change ca.1740 suggests that by the middle of the C18 this aspect of freedom-taking was largely dead. Put another way, it suggests freedom as a prerequisite for plying one's trade was no longer necessary. True, Rogers as noted earlier suggested this was becoming the case from the 1680s, but Latimer indicates the Council was fighting the tendency as late as the 1730s and 1740s and even into the 1770s. Obviously, however, the Council must have largely given up the fight before freedom became so much of an election plaything, so it would appear that it was the 1730s rather than the end of the C17 which saw the civic authorities finally abandon systematic attempts to force freedom on all craftsmen working in the city.

The graph also plots the number of pipemakers becoming free against general and by-election years, but interpretation of apparent correlations turns out to be dangerous, because the only definite indication of pipemakers deliberately taking their freedom for an election is the appearance of groups of closely-dated entries occurring immediately before an election. For example, the peak indicated on the chart for 1660 is not connected with the election of that year, for the election took place in April and none of the five pipemakers taking their freedom that year did so before May. (The peak indicated in 1669, which was not an election year, similarly turns out to be six pipemakers becoming free on various dates between January and December; and the peak of 1707, involving eight pipemakers, has the same explanation.)

The first time there is evidence of pipemakers deliberately becoming free for an election occurs in 1680/1, when all seven pipemakers who became free during the year 1 January 1680/1 to 31 December 1681 did so on 5, 7, and 8 February, the Bristol election ending 7 March.[17] This, however, is virtually an isolated case among the C17 pipemakers, for the peak coinciding with the 1685 election and the less well-defined one in 1690 turn out to be random. Of the five pipemakers free in 1685 one took his freedom on 31 March (the day after the Bristol election, at which the nominees were returned unopposed in any case, ended) while the others did so in a group on 10, 11, 12, and 14 December - the reason for this close spacing is unknown, but it certainly could not have been connected with the election of eight months previously. Similarly, whatever the reason for nine pipemakers taking their freedom between 9 March 1699/1700 and 12 April 1700 it can hardly have been the following election, for that was not until sometime in the period 2 January-5 February (Latimer omits mention of this election; the period during which it must have run comes from the Interim Report....). These concentrations may represent efforts by the Council to enforce the law that all tradesmen working within the city had to be free - as indicated above in Section II(d) there were a number of these attempts at the end of the C17 and beginning of the C18, Latimer noting (1893: 116-7) that an unusual number of people applied for freedom in 1717 following one of these hunts by the Council.

However, the 1715 election, held in September, shows clear suggestions that eligible individuals who had omitted to take their freedom were coerced or bribed to do so specifically for their vote. Nine of the 14 pipemakers to become free that year did so between 6 and 17 August and in addition there was one each on 20 and 21 July who may well have taken their freedom for the same reason. Of the remainder one did so in June, the other two after the election. Latimer does not specifically record freedom-buying for votes but there were considerable irregularities in the election and polling was stopped after two days because of continuous damage and bloodshed (Latimer 1893: 102).

The 1722 election, by contrast, appears not to have provided a crop of new burgesses, for although the chart shows a peak of eight pipemakers for the year the election took place 28 March-3 April and only three pipemakers took their freedom before that time - two in March, one in February. The defeated candidate did claim that many people were brought to the polls who had no right to vote but apparently did not produce proof of his contention (Latimer 1893: 130-1).

By the 1727 election there can be no doubt that eligible persons were being sought out and made free in order to vote. Of the 15 pipemaker freemen of that year 13 were enrolled between 17 and 31 July, the Bristol voting being in early September. Among accusations and counter-accusations at the election was that of one defeated candidate that "the treachery of the common people occasioned by the uncommon bribes given and offered by the opposite party" had lost him votes (quoted in Latimer 1893: 163); perhaps the two successful Whig candidates included freedom-buying among their "uncommon bribes".

The 1739 by-election was occasioned by the death of one of the Bristol members on 30 September, and between 1 October and 15 November, in which latter month voting started and ran until 12 December, all 19 pipemakers free that year became burgesses. In a vote in which ca.94% of the electorate took part the Tory candidate Edward Southwell who, it was recorded on 27 November, had

> kept open house at Shirehampton ever since he has declared. There are constantly employed a baker, a butcher, and two brewers to provide for the reception of all comers and goers

won with 2,651 votes, 448 more than his rival (quoted in Latimer 1893: 224-5). The high percentage of voters, doubtless occasioned by the open-house campaign, is reflected in the high number of pipemakers being made free - the highest number, indeed, in any year during the 237 years pipemakers are recorded taking their freedom. Conceivably the products of the baker, butcher, and two brewers had a special appeal to the pipemakers who voted, for 43 of them did so for Southwell and only 18 for his opponent

Henry Combe!

The precedent of vote-buying by making eligible persons burgesses now appears to have been clearly established. The 1747 election was held in June and had initially three candidates for the two seats, but one retired "alleging that a contest would excite animosity among the citizens" and the other two were thus returned (Latimer 1893: 267). Nine of the ten pipemaker burgesses that year took their freedom during the period 23-29 June, presumably because at that time the contest was still on.

The voting during the 1754 election was held in the fortnight ending 1 May, and all ten pipemakers who became free that year did so between 25 March and 8 April. Latimer records (1893: 310; 310-11) that no fewer than 986 persons became burgesses in April, their fees being paid by one or another of the three candidates, and that the two successful candidates and their supporters probably spent ca.£20,000 each in their campaigns. Among the voters "captured" were Francis Payton who had been apprenticed for seven years as early as 1717 but had presumably escaped notice until this election, and John White who had been apprenticed for seven years in 1733 but had also presumably avoided taking his freedom until this campaign. With such zeal being shown in vote-gathering it is not surprising that only ca.110 resident electors did not vote. That the well of potential voters had not been emptied, however, is suggested by the by-election of March 1756, two years later, for six pipemakers became burgesses between 18 and 24 February. Freedom-buying for votes is not recorded by Latimer during this campaign, but only 50 votes separated the two candidates and it can hardly be doubted that this method of obtaining votes was by now a standard and energetically-persued means.

By contrast, the local political leaders decided to avoid a contest during the 1761 general election and each party nominated a candidate who was then formally elected (Latimer 1893: 344), a process which no doubt explains why no pipemaker took his freedom that year. Again a by-election occurred in 1766 when one of the members had to vacate his seat on becoming First Lord of Trade, but he was re-elected in the December election without opposition. Thus again there was no concentration of pipemakers taking their freedom, only one pipemaker burgess being recorded and he in June (and, incidentally, the first for ten years).

At the general election of March 1768 there were initially three candidates, but one withdrew on the eve of the nomination day and so the other two were returned unopposed. However, as was recorded at that time, "Many houses were opened in the several parishes for the general entertainment of the friends of all parties" while a contest seemed likely, (quoted in Latimer 1893: 383-4); no doubt the six pipemakers who became free 9 March and the one who did so on 24 February represent voters bought while a contest was anticipated.

The 1774 election, described by Latimer (1893: 409) as "the most interesting election that ever took place in Bristol", saw the American Henry Cruger, an advocate of conciliatory policies towards the American colonies, poll the most votes among four candidates. The polls were open for 23 days ending 2 November and not only were nearly 2,100 new freemen placed on the burgess rolls by the committees of the rival candidates but over 400 freemen were brought from London, and two came from Ireland, one from Guernsey, and one listed as from "Charlestown, South Carolina" to sway the results (Latimer 1893: 410-11). Fifteen of these nearly 2,100 new freemen were pipemakers, the dates of their enrollment running from 3 October to a last-minute one on 2 November (James Lansdown, who claimed through having a non-pipemaker freeman father, though he had been apprenticed pipemaker 4 May 1742 - 32 years before - to Nicholas and Charity Willis, without presumably finishing his apprenticeship) though, oddly, he did not vote.

The September general election in 1780 and the January-February by-election the following year each produced five new pipemaker burgesses, and Latimer's descriptions (1893: 444-6 and 446-7) indicate the usual high-spirited and totally corrupt affairs. The production of five new pipemaker burgesses in the second election so soon after the first suggests a goodly number of pipemakers were no longer bothering to take their freedom unless it was made worth their while; it may also testify to the zeal of the political factions in ferreting out new eligible individuals. The anti-Cruger campaign of George Daubeny in 1781, inviting "all true Britons" to a dinner at the Full Moon inn, Stoke's Croft, "to try the difference between American bull beef and the roast beef of Old England" and "drink a health to the Friend of the King and the Constitution [Daubeny]" was met by Crugerite claims that without Cruger freemen "should have had no beef nor ale" and exorting voters with the slogan "A large loaf, a full pot, and Cruger for ever," and indicates the general tenor of the 1781 campaign, which Cruger lost. An opponent of Cruger writing in a Tory journal unconsciously indicated how voters could be intimidated by their masters, alleging that in winning the 1744 election Cruger ruined so many "labouring freemen" by persuading them to vote against their master's wishes, for which they were "ruined", that he had moved from Bristol to Weston near Bath to avoid the appeals of the unfortunate voters (Latimer 1893: 447).

The 1784 election was, according to Latimer (1893: 456), the longest and closest ever contested in Bristol. Polling ran from 3 April to 8 May, and the highlight was a neck-and-neck struggle between Cruger (who ultimately won) and Daubeny for one of the two seats. Scouts looking for potential freemen must have done their job with their usual efficiency, for seven pipemakers became burgesses during the time the polls were open.

For the 1790 election the two parties agreed, as they had done in 1761, to avoid the expense of a campaign by each nominating a candidate, and though two other candidates did appear the voting on the first day the polls were open was so emphatic that the competition ceased, the two nominees winning their seats. This gentleman's agreement between the two parties to divide the two Bristol seats between them appears to have continued for over 20 years, for not until the June by-election in 1812 and the general election in October that year - the American presidential nomination campaign-like qualities of which latter have already been described - was there any serious election campaign (Latimer 1887: 29-30, 50). The four general and two by-elections between 1790 and June 1812 yielded either no serious opposition to the nominees of the two parties or else no opposition at all.

No doubt this contributes to the lack of pipemakers taking their freedom between May 1784 and September 1804, for there would have been no campaigns to round up those eligible to take their freedom and vote, but trade directory evidence indicates pipemaking was at an all-time low in Bristol during this period. Further, when pipemakers do begin to appear again in the burgess rolls - one in 1804, one in 1806, one in 1807, two in 1808, and two in 1809 - they do not appear in connection with elections and can therefore be interpreted as new pipemakers representing the industry reviving and taking their freedom as it suits them. The fact that four of these burgesses took their freedom because they had married the daughter of a non-pipemaking freeman and another because he was the son of a non-pipemaking freeman further reinforces the impression that this was a new start being made to the industry; only two of the new burgesses represented the old industry, becoming free through their fathers being pipemakers.

There were, curiously, no pipemakers who took their freedom for the June 1812 by-election, but 13 did so for the October general election and they have been discussed earlier. Their appearance indicates the pipemaking industry was once more a going concern, for this number had not become free at one time since 1774 when 15 took their freedom.

The 1818 election was also contested, but Latimer does not mention freedom-buying and only one pipemaker appears to have taken his freedom for it, the election taking place 17-20 June and John Parker becoming free 12 June on the grounds he had married the widow of a non-pipemaker freeman. (The only other person to take his freedom for this reason is Jonathan Dark who became free 12 October 1812, though he had to pay a fine of £2 in addition to the standard 3s4d fee; Dark is referred to both in the burgess book and the 1812, 1818, and 1820 polls as a pipeburner and not as a pipemaker, which suggests he may have simply fired other people's pipes - or conceivably collected used pipes to clean them by firing - and not made them himself.)

The 1820 general election was contested but again Latimer makes no reference to freedom-buying and no pipemakers took their freedom that year. At the 1826 general election there was a major contest and 999 freemen were added to the burgess rolls at this time (Latimer 1887: 116-7), but rather strangely in view of the increasing size of the pipemaking industry evidence from trade directories, not a single one of these was a pipemaker. However, at the 1830 election, voting for which ended in Bristol on 5 August, the rival parties expended "not short of £30,000" and put more than 1,500 freemen on the burgess books (Latimer 1887: 138, 142-3); and among these were nine pipemakers, all of whom took their freedom between 26 July and 3 August. Two of them, Richard Moon and Thomas Appleford, became free because they had pipemaker fathers, and with the exception of one who claimed through his father being a non-pipemaker freeman the remainder claimed by marriage to the daughter of a non-pipemaker freeman.

The significance of the group of seven pipemakers who took their freedom in August 1838 - one on the 13th, four on the 14th, and on the 20th, and one on the 30th - is unknown. No election took place that year, nor does Latimer indicate any event which could be connected with this occurrence; only three of them, Samuel Roberts, Thomas Roberts, and Edward Thomas, used their freedom to subsequently vote (all three at the 1841 and 1852 elections). Similarly, no explanation is forthcoming for there being two pipemakers taking their freedom on 30 July 1839 (one, Simon Moon, did vote in 1841).

When these latter two, Simon Moon and John Packer, claimed their freedom they marked the effective end of a tradition stretching back to the Middle Ages. In a sense they symbolized the old and the new, for while Packer claimed his freedom because his father had been a freeman butcher Moon claimed his freedom through his father James F 1808 who had claimed it through his father Charles F 1770, an apprentice of William Nicholas F 1730 apprentice of James Jenkins F 1707 apprentice of William Tippet sr F 1689/90 apprentice and son of J(o)ane Tippet widow of Robert Tippet I, the founder of the most famous Bristol pipemaking dynasty F 1660 (and, rather ironically, the first pipemaker to become free by virtue of marriage to the daughter of a non-pipemaker freeman). When the last two Bristol pipemaker burgesses took their freedom in the 1870s not only was freedom an anachronism - for the second Reform Act of 1867 had removed the last vestiges of the usefulness of freedom for election purposes - but Bristol pipemaking itself was largely dead, the industry having dramatically collapsed in the 1860s. Thomas George II, who took his freedom through apprenticeship 11 August 1875 and died in 1881 aged 68, was a member of the last Bristol pipemaking firm. Of William James, who took his freedom 18 July 1877, we know nothing except he claimed his freedom because his father had been a freeman tiler and plasterer, for his name does not appear in the trade directories of this period: presumably, therefore, he worked as a journeyman for one of the handful of makers who struggled through the crash in the 1860s. Why George and James took their freedom we do not know, but perhaps they were romantics at heart and not unaware of the long history of their trade.

A comparison was made between the apprenticeship period as stated in the apprentice rolls and the time which elapsed before freedom was in fact taken to see whether the progressive lessening in importance of freedom observable from other evidence appeared here, but the results were inconclusive. It had seemed possible that as taking one's freedom became less important the period between commencement of apprenticeship and becoming free would tend to increase because more and more people were becoming burgesses only when forced to by drives to make all traders within the city freemen or later when election candidates made it worth their while, but no clear-cut progression appeared. From the beginning - that is, from the mid-C17 - there appears to have been considerable latitude in how promptly after apprenticeship freedom was taken. This may partly have been due to the rule which was noted earlier in discussing guild organization that a candidate had to be 24 years old before becoming free - so that, for example, a 16-year old apprentice serving a seven-year apprenticeship would finish the latter when he was 23 but still have to wait a year before becoming a burgess - but in many cases this is demonstrably not the case and its seems certain the most usual reason was simply the decline in effective guild control or concern in the matter.

Excluding the case of Thomas George II, which occurred in the C19 when freedom was no longer a meaningful institution, the pipemaker with the dubious distinction of delaying the longest before taking his freedom is Francis Payton, who was apprenticed 20 November 1717 for seven years and who did not take his freedom until 4 April 1754 during the election campaign of that year, a delay of over 29 years. (George was apprenticed 13 July 1827 for seven years, and did not take his freedom until 11 August 1875, a delay of over 41 years.) Three much earlier instances of very long delays are the cases of Thomas Smith jr apprenticed for seven years and one covenant year 2 November 1672 and not free until 18 September 1704, a delay of almost 24 years (assuming his covenant year had to be served before freedom could be granted); Joseph Butt apprenticed for seven years 27 August 1670 and free 8 April 1704, giving a delay of over 26 years; and William Davis apprenticed for seven years 31 October 1683 but not free until 10 August 1713, a delay of almost 23 years. Nothing further is recorded about Butt, though Smith is recorded as a pipemaker in the 1715 polls and Davis at the 1722 and 1734 polls. Much earlier than these three was the case of John Beale, who was apprenticed for seven years 20 August 1660 and did not become a burgess until 5 February 1680/1, a delay of over 13 years. A number of other examples of delays of ten or more years could be instanced fairly randomly throughout the period pipemakers were being apprenticed. In fairness to these and similar individuals it should be noted there is no proof they spent all the interval making pipes in Bristol undetected; they could have been elsewhere much of the time. (There is one possible case of a Bristol pipemaker producing pipes though apparently never taking his freedom there. Wills's Museum in Bristol has an unprovenanced pipe of typically earlier-C18 Bristol form with the name T/MOR/GAN in the standard Bristol-style cartouche on the bowl side (see illustration in Appendix IX). The only Bristol T. Morgan known is the Thomas Morgan A 1726/7 to Charles and Margaret Buckler and transferred on his master's death to John and Rebecca Macey (prob. John Macey II) in 1729. There is no evidence that this Thomas Morgan ever finished his apprenticeship, but there is certainly no other Bristol pipemaker to whom this typically Bristol bowl of about Thomas Morgan's period can be attributed.)

A consistent feature of these people is that they did not take apprentices, at least in Bristol. As already noted when discussing the Bristol guild it was stipulated that journeymen as well as masters had to be burgesses, but one suspects that as freedom became less important and the Council ceased its periodic hunts for unfree craftsmen, journeymen tended not to bother with freedom unless forced or persuaded to, while masters probably did incline to taking their freedom as long as apprentices were being taken. As noted above, the taking of apprentices became progressively less frequent as the industry retrenched in family businesses after ca.1740. That masters were latterly using quite a number of journeymen in their businesses is suggested by John Frederick Bryant's father, John Frederick sr, employing ten journeypeople before the decline of the Bristol pipetrade with the Stamp Act troubles (Bryant 1787: vii-viii) - no mention is made of the father having any apprentices, and indeed the apprentice rolls make no mention of his taking apprentices.

At the other end of the scale there are quite a number of individuals who took their freedom very promptly - within the first month or so after they became eligible. There are even two, or possibly four, cases of people taking their freedom before the nominal date. Samuel Fishpell apprenticed 13 November 1682 to Llewellin and Mary Evans for eight years took his freedom 13 November 1682, over five months before the eight years were up;

while Richard Carter apprenticed 17 June 1699 to James and Jane Abbott became a burgess 4 June 1706, 13 days before the seven years were up. Of the two uncertain cases one is that of Nathaniel Chilton apprenticed 26 February 1695/6 to John and Mary Sinderling for seven years plus six months covenant. Chilton became free 24 May 1703, three months after his seven years were up but three months before his covenant period was due to finish; however on 7 November 1699 he had been transferred to Joseph and Jane Stanford as Sinderling was dead and the entry then says he was turned over for seven years - whether this indicates the removal of the covenant period is uncertain, for it might also be taken to mean he was to be with Stanford for seven years (that is, from 1699). The other uncertain case is that of Llewellin Evans F 31 May 1661 when his master was noted as being James Fox: if he is the otherwise unidentified Llewellin Williams Bevan apprenticed to James and Jane Fox 9 October 1654 he became free over five months before his apprenticeship was due to finish (no Llewellin Evans is noted in the apprentice rolls).

Edward Reed F 29 June 1700, Richard Gill F 19 June 1725, John Harris II F 12 May 1729, and George Viner F 22 April 1747 all took their freedom the day after they became eligible; William Evans I F 26 September 1660 and Henry Artus F 25 February 1681/2 took theirs two days after they became eligible; and William Cullen F 4 July 1707 and Charles Moon F 10 January 1770 took theirs three days after. Others who did so within 30 days were James Bull sr F 13 November 1665 (assuming his covenant year had to be served before he could become free), William Evans II F 6 August 1667, William Taylor F 18 February 1688/9, Devereaux Jones sr F 3 July 1691, Charles Jones F 13 October 1694, John Pearce I F 13 November 1696, Thomas Lewis II F 1703, John Beaton F 12 May 1707, James Jenkins F 7 August 1707, Francis Painter F 12 September 1715, Mathew Gethling F 16 June 1722, and John Peters F 19 February 1756; several others from the 1710s to the 1730s did so within 60 days. The majority of those taking their freedom after apprenticeship did so in a period of from under one year to about four years after completing their apprenticeship, and this is fairly constant from the middle of the C17, when the guild was formed, into the second half of the C18, by which time apprenticeship in pipemaking had declined.

Latterly there is no doubt that those taking their freedom promptly were doing so because the end of their apprenticeship happened to occur near an election, which does indicate a degeneration of the original concept of freedom, but it must be remembered that even those who took their freedom promptly in the heyday of the industry formed only a small percentage of the 347 pipemaking apprentices recorded; and the spread of such cases covers the period from the beginning of the industry on an organized basis until the 1730s when on other evidence it can be seen the old bonds of the trade were beginning to weaken.

However, there is one aspect of freedom-taking latterly which does reflect the disintegration of the traditional system, and it is connected with the increasing buying of freedom for potential burgesses to procure their vote at elections. Mention has already been made of Jethro Phillips, Thomas Wadham, Samuel Richards I, John Edwards I, and John Newton I who took their freedom - Phillips and Wadham for the 1739 election, Richards, Edwards, and Newton for that in 1747 - on grounds other than apprenticeship although each had originally been apprenticed to a pipemaker. There are several other instances of this in the following 70 years - Henry Carey F 9 March 1768, Henry Wickham F 10 September 1774, James Lansdown F 2 November 1774 (mentioned earlier), William Showell F 19 April 1784, and John Adams F 1 October 1812. Further, while Adams did not become free until over 20 years after his seven-year apprenticeship had begun and Lansdown not until over 32 years after his had begun, Carey had started an apprenticeship only 26 months previously (Edwards had been apprenticed seven years less ten weeks before becoming free, Wadham seven years less four months).

How active these individuals were as pipemakers is uncertain. It has already been suggested that of the earlier group possibly only Richards continued a business, and none of the later individuals took apprentices and only one is recorded in the trade directories of the period. Carey did not vote at the 1768 election - perhaps the manner in which he obtained his freedom was too much even for that hectic campaign, and he may have been very young at the time - but he is recorded as a pipemaker at the 1774, 1781, and 1784 elections. Lansdown did not vote in 1774, but did so in 1781 and 1784, by which later date he was in Southwark, which was a London pipemaking area.

Showell's case is extraordinary. There is no doubt the William Showell A 16 November 1776 to William Carey for seven years is the same William Showell F 19 April 1784 by virtue of his father being a freeman cordwainer and voting immediately afterwards from London. (Curiously, his sister Hester married James Carrington F 1781 fl 1784 who became free on the grounds he had married the daughter of a freeman cordwainer.) The problem is a William Showell appears as a pipemaker at 12 Houlton St, beyond Lawford's Gate, in Sketchley's directory for 1775, a year before the date for Showell's apprenticeship. There is no evidence suggesting two William Showells, pipemakers, and as Houlton St was outside the city Showell could probably have worked there without taking his freedom, particularly by this time of the C18.

Conceivably, with the collapse of the Bristol pipe-industry with the outbreak of the American Revolution in 1775 (see Sections VI and VII(b) below), Showell found his business gone and was lucky enough to find employment with one of the few makers who were still struggling on in Bristol and glad to accept a position as low as that of an apprentice (which would have been easier for Carey to keep than a paid journeyman - in fact Carey got £2 from Alderman Kitchen's fund when he took Showell apprentice). William Carey does not appear after 1775 and probably his business too went under, leaving Showell free of his indenture. Subsequently Showell went to London for he votes from there in 1784, immediately after having taken his Bristol freedom. Possibly the zealous searchers for potential freemen and voters did not confine themselves to Bristol alone but collected information on, and sought out, eligible Bristolians elsewhere in England.

Of Adams (A 1792, F 1812) we know nothing; he did not even vote in 1812.

The most that can be said, therefore, about these individuals excluding Showell is that they may have been journeymen pipemakers with those makers whose names do occur in the directories, or in the case of those who migrated to London they may have worked there as journeymen pipemakers. The near-closure of the Bristol pipe industry towards the end of the C18, however, and the general poverty of the industry elsewhere at this time, suggests many pipemakers recorded in the burgess books and polls of the period did little work as pipemakers.

Between the 1770s and 1827 (at which latter date pipemaker-apprenticeship entries cease) only five pipemaking businesses in Bristol are taking apprentices: Israel Carey F 1756 and his son John F 1780; Samuel Richards II (presumably Samuel jr F 1774 when he was living at Woolwich though he was back in Bristol by 1781) and probably son Samuel III F 1812; John Okely F 1768 and after his death his widow Martha and son William F 1809; William Thomas F 1807; and Thomas George (William Okely's brother-in-law) F 1812. Over that period they took only 12 apprentices among them, and at these masters only William Thomas belonged to the new, post-American Revolution group of pipemakers.

SECTION V:
TRENDS IN PIPEMAKING AS SEEN IN THE POLL-BOOKS, 1715-1852

Until the secret ballot was introduced in 1872, voters and the way they voted were recorded and published in poll-books. These thoroughly undemocratic proceedings have left us invaluable lists of inhabitants, in many cases with their trades noted.

The earliest Bristol poll-book is that for 1715, which apparently survives only as a typescript copy in the Guildhall Library, London (its existence does not appear to be known to Bristol historians - Ralph and Williams (1968: xxiv) note, correctly, that the 1722 poll book was the first published, but they do not mention the existence of this earlier, unpublished, list of voters). The right to vote in Bristol prior to 1832 was restricted to freeholders and freemen; in the Bristol poll-books those who voted were listed by parish, and freemen (except in the 1847 book) had their trade entered. An idea can therefore be obtained of which trades concentrated in which areas of the city. From the 1812 election onwards the street of residence of the voter is given, permitting a much more exact distribution of trades to be noted. The 1715 book as it survives does not record how votes were cast, but the remainder up to 1852 [18] do: considering the general corruptness of politics particularly in the C18 (see remarks in Section IV above) it would be unrealistic to relate votes to the political creeds of the candidates, but it is perhaps worth noting briefly what observations can be made on how pipemakers did vote.

The poll books, however, are not always easy to use. There are frequent mis-spellings and occasional mis-ascriptions of occupation, parish, and even of vote. The books may have been taken from lists compiled during voting when the voter gave his name to a recorder - an error such as that of Daniel Chilton for Nathaniel Chilton (1722 polls) makes no sense as a copyist's mistake, but could easily have been a mishearing of the name if shouted amid the usual din of a public election. A much more frustrating problem with the poll books is that there are different editions for the same election, and not every edition has exactly the same voters listed (I am grateful to Mrs M. Tatchell for checking various books held at the British Museum, Guildhall, and Society of Genealogists libraries in London against lists from books held in Bristol). Indeed, Oswald (1960a: passim) has four pipemakers - Israel Carey, Alexander Cherrington, William Haynes, and John Macey - cited as appearing in the 1722 Bristol poll book which this writer has so far been unable to locate in the various copies.[19] The 1722 polls appear to have been particularly confused, probably for reasons discussed below. Examples of some problems encountered are the poll books for 1754 held in the Bristol Archives Office and the British Museum listing Samuel Pearce a pipemaker in Christchurch and Philip Knell a pipemaker in St Peter while the poll books for the same year at the Guildhall and Society of Genealogists libraries list the Christchurch Samuel Pearce as a scrivener and puts pipemaker Samuel Pearce in St James and Philip Knell in Temple.[20]

Nevertheless, the poll lists do offer an opportunity for random checks on the accuracy of the burgess rolls, for while obviously not every freeman voted at each election, those who did and gave their trade as pipemaker should appear in the burgess rolls as obtaining their freedom if the burgess rolls are comprehensive, provided always that the poll lists have not been heavily salted. In fact, excluding the Israel Carey, Alexander Cherrington, and William Haynes listed by Oswald in 1722 (see above), only 12 pipemakers not found among the 198 in the burgess books for the C18 appear, confirming the impression from other evidence that the Bristol burgess records are reasonably comprehensive and accurate.

Those noted in the poll books known to this writer but not in the burgess rolls are as follows: Charles London 1715; John Davis, Samuel Helmes, Nicholas Mortimore sr, Nicholas Mortimore jr, and Thomas Murry all 1722; Henry Haynes, Richard Slade, Walter Hardwick, and John Penny all 1734; Thomas Burt 1739; and James Newman 1754. It is conceivable these 12 were pipemakers free from some other city but working in Bristol and allowed to vote there; one would have thought, however, the permission (and probably fine) for them to do so would still have been recorded in the burgess rolls. The fact that these individuals appear most frequently in the 1720s and 1730s, when the Bristol pipe-industry is at its height, adds some weight to the suggestion they could have been attracted to Bristol from some other centres; however, as noted below, both the 1722 and 1734 elections brought accusations of wholesale fraud and this is probably a more likely explanation for the appearance of these names. The status of these people as Bristol pipemakers remains uncertain, therefore.

Two instances of non-freemen voters also occur in the early C19, Philip Thomas voting in 1818 and William Roberts in 1830, the latter from Cardiff. (A number of other names not recorded as pipemaker-freemen do appear in the poll books: John Downs [sic] and George Gay 1841; James George I and James Maun 1841 and 1852; William Perrett, James Roberts, John Roberts, John Williams IV, James Winchester, and Thomas Young II 1852; but by this time the franchise was no longer restricted to burgesses and all had probably qualified as householders paying £10 or more in rent.[21] Presumably Downs is the Down of Sa[u]nders and Down, a pipemaking partnership noted 1839-49;[22] James George I (B ca.1787, D 1873) is the son of Thomas George I F 1812.) As noted in the preceding section, Latimer does not mention vote-buying in the 1818 election, though it is difficult to believe it did not occur; but in 1830 some £30,000 was expended in vote-gathering efforts and more than 1,500 freemen were placed on the rolls, so the smuggling in of an unfranchised voter from out of town and probably voting by proxy would not have been difficult (Roberts voted for Davis and Baillie, the two successful candidates, as did the large majority of pipemaker voters).

According to Latimer (1893: 130-1), the defeated candidate in 1722, William Hart, accused Sir Abraham Elton, who had beaten him out of second place by 126 votes, of bribery, threats, and bringing in many people not entitled to vote. Hart apparently did not produce any evidence of his contention, however, perhaps because if the five pipemaker-voters in 1722 listed above were indeed not entitled to vote Hart himself was not guiltless of buying voters, for though the two Mortimores, Helmes, and Davis all voted for Elton and the other successful candidate Joseph Earle, Murry voted for

Hart. (Until the Redistribution Act of 1885 Bristol returned two Members representing the whole city - except at by-elections, therefore, voters were allowed two votes and the two candidates gaining the most votes were declared the winners.) In addition, as noted below, Hart may have had a pipemaker vote twice for him at this election.

After the 1734 election the mayor and corporation of Bristol petitioned parliament to unseat Thomas Coster in favour of John Scrope, who had been beaten out of second place by 205 votes, on the grounds the former had polled invalid votes. According to Latimer (1893: 188-9) a copy of the poll-book for the election in the British Museum has manuscript notes suggesting about one-sixth of the votes polled were bad, and gives Scrope a majority of 66 votes. However, the city must have felt their case was poor, for after considerable financial outlay and after a large part of a Commons sitting had been spent debating the petition, they withdrew it. Certainly the four pipemakers noted above voting in 1734 and possibly not valid voters voted for Coster. (Attempts to find the poll-book referred to by Latimer as being in the British Museum were unsuccessful.)

In view of the prevailing corruption in the electoral system it would be surprising if some evidence for votes being cast twice or of dead pipemakers listed as voters were not found. There are three possible cases of the latter. Charles Chick, F 1697, is noted as being dead by 13 March 1721/2 when his son Samuel took his freedom by patrimony but his name appears among the voters from Temple parish in the 1722 election, the voting for which in Bristol was held from 28 March to 3 April. At the same election, which as noted above appears to have been more than usually irregular, Thomas Lewis sr, F 1703, though noted as being dead by 27 November 1721 when one of his two sons named Thomas was apprenticed to Margaret Cooper, appears among the voters from St James parish. Charles Chick's votes were for Earle and Elton (as were those of Samuel), so perhaps William Hart (above) had some grounds for complaint; however, Lewis voted for Hart, so it appears to have been a case of the pot calling the kettle black. Samuel Pearce sr, F 1754, may also have voted from the grave, for he is referred to as deceased when his son William took his freedom by patrimony on 7 April 1784 and voting in Bristol for the election that year only commenced 3 April, suggesting (unless the freedom-roll entry is inaccurate) that either Samuel Pearce died between 3 and 7 April but voted between 3 April and his death or else his vote was rigged. Samuel sr is recorded when voting as living in London, which would have made checking conveniently difficult; Samuel jr is also recorded voting as from London though William Pearce voted from Bristol.[23] Both Samuel Pearces voted for the same candidates, Brickdale and Daubeny.

Another suggestion that the 1722 election had more than its fair share of irregularities is the appearance (according to Oswald 1960a: 63 - this writer has been unable to locate the entry) in the poll-book for that year of an Alexander Cherrington. He does not appear in the burgess rolls, but may be Alexander Cherrington II A 29 December 1679 as a pipemaker to his father William Cherrington I and on whom there is no further information. Unless his freedom was inadvertantly omitted from the burgess rolls, Cherrington - if it is the same person involved - was voting illegally. (Something similar may have occurred with another member of the Cherrington family at the 1680/1 election, though no voters' list survives for that election. As noted in Section IV above, this election was the first to show evidence of freedom-taking by pipemakers specially to be able to vote. One of those becoming free at this time was John Cherrington son of William Cherrington I, who was apprenticed to his father 14 August 1673 and removed 17 July 1675 by the Mayor and Alderman with the consent of the apprentice and the master, no benefit to be had by the apprentice and his name to be removed from the Tolzey Book. Perhaps the Cherrington tendency for dubious arrangements was inherited from Alexander Cherrington I whose several apprenticeships and doubtfully legal listing as a guild founder-member in 1652 have already been noted in Sections I and II above and who may have been William I's father.)

An entry which may involve double voting also occurs in 1722. The poll book lists a George Avery and a George Every, both voting from St James parish and both voting for Hart. Either of these can be convincingly identified as the George Ebbery F 1721 (date of apprenticeship not found) but no identification can be found for the other, so one would assume either a double recording in the printed list or a double voting. If the latter, it appears to be the only case involving pipemakers.

Another point of usefulness of the poll books is to record pipemakers for whom no records appear after they have taken their freedom. This latter feature becomes progressively more common as the C18 progresses and is probably occasioned by these pipemakers becoming journeymen with other makers and thus never taking apprentices, the apprentice entries, which fall sharply after ca.1740, hitherto having given the bulk of post-freedom references to pipemakers. However, towards the end of the C18, with the near-collapse of the pipemaking industry in 1775 and the years following, a number of the makers appearing in the poll-books may well have been unemployed, or at least not employed as pipemakers.

In the C19 century, however, when most pipemakers are clustered in the St Jude's area just outside the pre-1835 city limits (see Section VIII below), the information becomes particularly useful because addresses are also given, and sometimes speculations can be made as to the employer for whom the journeyman worked. For example, James Edgar F 1812 voted in that year from Narrow Plain in St Philip and Jacob In-parish, near enough St Jude's to suggest he worked there particularly as no businesses are recorded about that date in the in-parish; but in the 1818 and 1820 elections he is recorded on Host St in the city centre, which suggests he may have been working for William Okely at Under the Bank. In the 1830, 1832, 1835, and 1837 elections he is recorded in Gt George St in St Jude's, indicating he had moved to the rapidly-expanding pipemaking quartier.

Similarly, a great deal more information is available on the Moon family than would ever have come from freedom- or apprentice-rolls. Charles Moon, F 1770, votes from St James in 1774, at which time that parish still had virtually half Bristol's pipemakers; in 1781 he had moved to Bedminster - no other pipemaker is recorded there before Richard Offer fl 1859-66 - and by 1784 he was in Castle Precincts, suggesting he may have been working for Isreal II or John Carey; in 1812 he was at Lawrence Hill in St Philip and Jacob Out-parish, some way west of St Jude's; and in 1818 and 1820 he was on Ann [sic] St in St Jude's, indicating he too had ultimately moved into the new pipemaking area. James Moon F 1808, Charles's son, is recorded in business at Pipe Lane, Temple, in the 1833 and 1834 directories: he, interestingly, appears to have moved out of St Jude's to establish himself, for in 1812, 1818, and 1820 he voted from Gt Ann St and was presumably a journeyman to a St Jude's maker, but in 1830 and 1832 he votes from Rose St, Temple, and in 1841 from adjacent Avon St. (Temple Way now occupies the site of Avon St; Rose St still remains, at the "Cherry Tree").

In view of known shortcomings in directory entries, it is possible James Moon had a business in Pipe Lane by 1830, for William Dowdeswell F 1830 voted from that address in that year. One of James Moon's sons, Richard F 1830, also votes in that year from Rose St, suggesting he may have been working with (or at least living with) his father; another son, Simon F 1839, voted in 1841 from Temple Back, suggesting he could have been working for the Ring firm who had their business there.

Thomas Fisher F 1812 voted from Avon St in 1818 and Rose St in 1820 before appearing in the directories at 70 Temple St 1825-32 as Joseph Edwards II's successor, voting from there in 1830. However, Fisher had also voted from Temple St much earlier, in 1812, suggesting he could have been working for Edwards at that time.

John Mills F 1830 occurs in the directories only in 1844 and 1845, when he is listed at 50 New St and has apparently taken over William Pratt's business at that address listed there since 1835. However, in 1830 Mills voted from New St (no number given, unfortunately) and it is possible he was a journeyman for Pratt and took over his business on his death or retirement.

Another example is John Tovy F 1812. In that year he voted from Castle St in Castle Precincts; in 1818 and 1820 he is at Old Market, near St Jude's but still inside the city; and in 1830, 1832, and 1835 he is in St Jude's, at Gt George St.[24] Finally in 1837 he votes from Earl St, a now-vanished lane running off Pennywell Rd a little way NE of St Jude's and then in largely open country (see Section VIII below) and in 1841 was probably at the same location, though the address is Pennywell Rd - perhaps by 1837 he had made enough money to live outside the fast-evolving slum of St Jude's.

Other journeymen moved around, but within the St Jude's area or parts adjacent. John Ballard F 1808 votes in 1812 from Lawrence Hill, some way west of St Jude's, and in 1818 from St George's parish in Gloucestershire, in the same general area; in 1820 he is in the old central pipemaking area of Lewin's Mead, but in 1830, 1832, and 1835 he is in Gt George St and in 1841 on New St in St Jude's: though apparently active for at least 33 years he never appears in a directory. Arthur Roberts F 1812 and a brother-in-law of John Tovey above is on Little George St in 1812, Eugene St in 1820, and Gt George St in 1830, 1832, 1835, and 1837; his only directory appearance is in Pigot's 1842 directory.

A variant form of information obtained is data on makers between the time they took their freedom and their first appearance in trade directories, though as discussed in the following section there is some evidence from non-Matthews's directories that Matthews's series were omitting makers actually in business. Apart from James Moon, John Mills, and Arthur Roberts noted above, there is Thomas Edgar F 1830 and perhaps a brother of James Edgar above, who first appears in directories only in 1847, after which he is listed until 1862 on Gt George St; but he voted from Gt George St in 1832 and 1841 besides 1830, suggesting he had been there in some capacity the entire period.

With the collapse in the 1770s of the city's attempts to prevent non-freemen from practicing trades (Section II(d) above), it becomes only a matter of time before the freedom rolls begin to no longer be an accurate representation of tradesmen working in the city, though the necessity for obtaining freedom before being able to vote ensured the continuance of burgess roll entries. With the extension of the franchise as a result of the First Reform Act of 1832, however, all semblance of the burgess books being a cross-section of Bristol trades ceases, and the poll-books once again supply otherwise unavailable information. With the demise of the apprentice and the freedom rolls as effective sources of information in the early C19, only the poll books and the trade directories (Section VI below) remain as sources.

The latter list owners of businesses rather than individual workers (though many of the Bristol pipemakers must have had in effect "one man" businesses) and one might thus have hoped for the poll books to note otherwise unrecorded journeymen working for these businesses. In the early 1870s, for example, after the bottom had fallen out of the Bristol pipemaking industry in the earlier 1860s and the industry was dying, the firm of Thomas George were still employing about 30 hands (Anonymous 1921a)[25] and even if, as seems likely, George's, along with Ring's, were the biggest Bristol firm and not all 30 employees would have been directly involved with the making of pipes, the score or so other businesses in the 1840s and 1850s must have employed a sizable number of employees among them. Support for this conclusion comes from the census data for this period, which is discussed in detail in the immediately-following section. The 1841, 1851, and 1861 censuses give the total numbers of those of all ages employed in pipemaking as 226, ca.258, and ca.220 respectively. Further, while the 1851 census abstracts do indicate there was at least one pipe-manufacturer in Bristol employing between 30 and 34 people at that date, they also suggest the normal businesses were indeed "one man" or family establishments with about three to five employees in addition to the proprietor.

However, as it turns out, the poll books are of virtually no help in identifying otherwise unrecorded journeymen pipemakers, for only two pipemakers appear in all the C19 poll books who do not also appear either in the freedom rolls or the trade directories, and one of these, William Roberts noted in 1830 and probably related to the numerous and confusing Robertses recorded as pipemakers in Bristol at this period, was working in Cardiff. Otherwise, only Philip Thomas, voting from George St [sic] in St Philip and Jacob in 1818, is unknown from other sources, though there is a family of Thomases pipemakers in Little George St during the first half of the century. Actually, as noted above, Thomas and Roberts appear to have voted illegally, never having become freemen.

Lastly, there is the listing in the books of "out-voters", Bristolians living elsewhere but whose votes were recorded in Bristol. This enables one to see which tradesmen left the city, presumably to look for better employment opportunities, and thus to guess at what trades were declining, or at least were over-stocked with workers, in Bristol. This information provides extremely interesting evidence relating to Bristol pipemaking in the C18, as is discussed below.

Trends in the C18 industry show quite clearly when pipemaker voters are tabulated by area of work and year of election, as below:

	1715	1722	1734	1739	1754	1774	1781	1784
*All Saints	-	1	-	-	-	-	-	-
Bedminster	-	-	-	-	-	-	1	-
Castle Precincts	-	1	-	1	1	1	1	5
*Christchurch	1	-	-	-	2	1	1	-
St Augustine	2	-	-	-	-	1	-	-
*St Ewen	-	-	-	-	-	-	-	-
St James	16	24	23	24	19**	16	8	4
*St John	2	1	1	3	1	4	-	1
*St Leonard	-	1	-	-	-	-	-	-
*St Mary-le-Port	-	-	-	-	-	-	-	-
St Mary Redcliffe	1	5	3	3	3	1	1	-
St Michael	2	7	8	12	7	5	7	5
St Nicholas	1	-	1	-	-	-	-	-
St Peter	2	1	1	1	-	-	-	-
St Philip and Jacob	-	1	1	1	3	1	2	1
							(out-parish)	
St Stephen	-	1	-	-	4	-	-	-
St Thomas	4	2	2	5	-	-	2	1
*St Werburgh	-	-	-	-	-	-	-	-
Temple	2	3	5	8	7	4	4	6
sub-totals	33	48	45	58	47	34	27	23
OUTVOTERS	-	-	1	3	6	11	18	21
totals	33	48	46	61	53	45	45	44

*The seven small parishes forming the core of medieval Bristol.

**Philip Knell, recorded voting from St James in one poll-book for this year and from Temple in another, is included here in St James on the not-too-satisfactory grounds that when previously recorded voting (as far back as 1715) he had been in St James and that St James was the parish by far the most strongly associated with pipemakers at this time, thus making it more likely that Knell worked there.

The first point which should be noted is the trend in the number of pipemakers recorded working in Bristol at the various dates (the "sub-totals" listed above). These figures show an increase up to 1739, when 58 are recorded; thereafter the numbers drop steadily. This agrees with the evidence of the apprentice and burgess rolls, which suggests the Bristol pipe-industry had a sharp reduction in apprentices being taken and qualified craftsmen becoming free ca.1740, and also agrees with the evidence from the Bristol export trade in pipes (Section VII(b)(4) below) which suggests the period ca.1690-1740 was the zenith of that trade.

The second point to note is that the decline in pipemakers recorded in Bristol after 1739 is paralleled by a rise in Bristol pipemakers moving elsewhere to continue their trade. This move has started by 1734 (when

Robert Ducy votes from Norton St Philip ca.6 miles SSE of Bath) and steadily increases so that in 1774, on the eve of the near-total collapse of the Bristol industry following the American Revolution 25% of Bristol pipemakers voting are expatriate. With the severe effects on the industry with the dislocation of its oversea trade the number of pipemakers leaving to seek a living elsewhere continues to increase: 48% were out-voters by 1784.

The third point to note is the distribution of pipemakers within the city. In the C19 as will be noted below and also in Section VI pipemakers concentrated in St Philip and Jacob parish, in fact in a very small area of the out-parish of St Philip and Jacob (that part beyond the city limits until 1835) known after 1849 as St Jude's. In the C18 lack of addresses prevents seeing just how close together pipemakers of that time worked and whether they had a quartier like their successors a century later, but there can be no doubt they concentrated in St James parish, particularly in the earlier part of the century when the industry was at its height. The 1715, 1722, and 1734 polls all list 50% of Bristol's pipemakers in that parish, and up to 1774 a marked concentration still continues in that parish. Not until the 1780s does St Michael rival it as a pipemaking area, and then it is not a case of St Michael gaining pipemakers but St James losing them. St Michael parish is in fact the only other Bristol parish to have an appreciable number of pipemakers, the number increasing steadily in the earlier part of the century until in 1739 ca.20% of the pipemakers recorded in that year were in that parish; ca.40% were recorded in St James for that year. In the second half of the century the number recorded falls sharply, but it stays around half a dozen from 1754 to 1784 while the numbers in St James fall rapidly throughout that period. The only other parishes to record any substantial number of pipemakers in the C18 are St Mary Redcliffe and St Thomas in the earlier part of the century and Temple fairly consistently throughout the period, the last-named recording six in 1784 as opposed to five in St Michael and four in St James.

The concentration in St James agrees with other evidence. Although the parish was very large and in fact extended outside the city boundary of the period and included much open land (FIG 148a) Lewin's Mead was in this parish, and in the 1690s the Robert Tippet family, the William Tippet family, and Robert Nunney, all pipemakers, lived in Lewin's Mead (see Appendix IX); and it appears probable that James Jenkins (fl 1707-39) lived or at least worked there or in the immediate vicinity at any rate during his earlier career, as a number of varieties of pipes predominantly his were found in a deposit of wasters and kiln-debris uncovered in 1971 during construction work in Lewin's Mead (O. Kent 1973: 198; Arch. Rev. 7 (1972) 61 s.v. Bristol - Lewin's Mead), and though Jenkins is recorded voting in 1734 and 1739 from St Michael he voted in 1722 from St James. (In fact, St Michael and St James adjoin and the former actually includes the south end of Lewin's Mead, so that Jenkins could have spent all his working life in Lewin's Mead.) A kiln-tip deposit found in 1973 immediately beneath Whitefriars, a lane off Lewin's Mead, and including pipes identical to those attributed to Israel Carey II and found in 1971 at the angle of Broad Weir and Lower Castle St (R. Price in litt. 18 January 1974), must represent Carey's period at Lewin's Mead, which immediately preceded his stay at Castle Green (adjacent to Broad Weir and Lower Castle St), for he was definitely working at Lewin's Mead by 1775 - and probably earlier, for he voted from St James in 1774 and had become free in 1756 - and voted from St James in 1781 but had moved to Castle Green by March 1782 (Appendix IX; cf also pp 571 and n39 and 766-7 below). The pipe kilns at Whitson and Rosemary Sts, which on the evidence of pipe material found there must have been factories of the Robert Tippet enterprises, are also in St James parish. As is noted in Section VI below, Bristol's first trade directory, which appeared in 1775, noted 4 of the 11 pipemakers listed as being in Lewin's Mead. Another of the 11 was listed in nearby Lower Maudlin Lane (now Street), also in St James parish. There is therefore reason to suppose that the concentration of pipemakers in St James parish in fact formed quite a close group near the central area of the town. There is little evidence from which one can locate where pipemakers in St Michael worked, but it could well have been in the area immediately adjacent to Lewin's Mead (cf remarks on James Jenkins above); Anna Viner, also listed in 1775, lived in Horse (now Host) St very close to Lewin's Mead, though only part of Host St was in fact in St Michael parish, the rest being in St Augustine.

The three parishes of St Mary Redcliffe, St Thomas, and Temple are adjacent one to another and among them cover the city area south of the Avon. This area was already industrial, and in particular was connected with Bristol's port trade (cf Buchanan and Cossons 1969: passim), and may have been convenient for small industries such as pipemaking. Certainly potteries (Pountney 1920: map between pp358 and 359) and glass-works (Buchanan and Cossons 1969: 146) - were located there. By contrast the seven small parishes which formed the core of medieval Bristol (asterisked in the table above) have few pipemakers, three in fact having none and two more noting only one each in the entire century. Of the remaining two only St John has a fairly consistent scatter, and it is possibly significant that St John is the parish which marches with St James across the Frome. In all, therefore, there seems evidence to suggest Bristol pipemakers in the C18 before the collapse in 1775 concentrated along the Frome from what is now the head of the Floating Harbour to perhaps the Broadmead area.

The expatriate Bristol pipemakers make a particularly interesting study. The first, as already noted, was Robert Ducy who voted in 1734 at "Philip's Norton, Somerset" (Norton St Philip, ca.6 miles SSE of Bath) and had a long career in that area, being recorded at Tellisford ca.1-1/2 miles east of Norton St Philip at the 1739 and 1754 elections. In fact, Ducy must have left Bristol immediately or very shortly after obtaining his freedom there, for he is recorded (Oswald 1960a: 67) as taking a T. Tanner apprentice at Tellisford in 1729 - for which he received £4 - and had only become free in 1727, when he married Susannah daughter of pipemaker Richard Abbots (Oswald loc. cit. gives Ducy's freedom date wrongly as 1726). However, it is possible that Ducy may have come from this area originally, for the Bath Roman Museum has the heel fragment of a pipe which must date to somewhere in the period ca.1650-90 with the name IO/HN D/VCY: if this Ducy is any relation of Robert he must be ancestral, but because Robert took his freedom by marriage we do not have the information as to where he came from which we would have had if he had been an apprentice with an entry in the apprenticeship rolls. Nothing is known of John Ducy, though one may speculate he worked in the NE Somerset-west Wiltshire area.

By 1739 two other pipemakers, John Harvey and Joseph Milsom, had left Bristol to seek their fortune elsewhere, in both cases in London. Harvey is probably the John Harvey F 1725/6 (the John Harvey voting in St James in 1734 is probably the John Harvey F 1705/6 and voting in St James in 1715, 1722, and 1739); nothing further is known about the London John Harvey. Joseph Milsom was apprenticed 1714 and became free 1722, but nothing else is known about him.

By 1754 five pipemakers beside Ducy have left the city, all going in the time-honoured manner to London. They are John Frederick Bryant sr (F 1747), Joseph Coules (A 1728 F 1737), William Foord (A 1723 F 1733), William Pearce (A 1721 F 1733/4) and John Poyte IV (A 1731/2 F 1739). In this case all five had been active in Bristol prior to going to London, which may suggest they were conscious of decline beginning in the Bristol industry and were anxious to move to better fields. It is dangerous to generalize, however, for two of the five subsequently returned to Bristol, and John Frederick Bryant jr records his father, the John Frederick Bryant sr above, went to London before 1753 because he disliked pipemaking and became a journeyman painter (Bryant 1787: i). His being recorded at the Bristol polls of the following years as a pipemaker therefore does not mean he was an active pipemaker, only that he was a Bristol freeman with that qualification. It thus cannot always be taken for granted that a pipemaker recorded at the polls was an active one, particularly in the bleak last decades of the century. In 1760, however, Bryant sr, "in consequence of proposals made him by a relation in Bristol", returned there to follow his original calling and worked in reasonable prosperity until his business began to decline after the Stamp Act troubles of 1765-66, voting in St James parish in 1774, being listed in Lewin's Mead in that parish in the 1775 trade directory, and dying ca.1777.

Coules voted in St James in 1739 two years after becoming free, but by 1754 had made his way to London, voting from there in the elections of 1774, 1781, and 1784. Foord worked in Bristol for some ten years after becoming free in 1733, voting in St James in 1734 and 1739 and taking several apprentices. He is noted taking an apprentice, Isaac Battin, in 1740/1, but between then and Battin's becoming free in 1748 probably left for London, as when Battin became free it was noted he had changed masters. At any event Foord is in London by 1754, though nothing further is recorded of him. Poyte, free 1739, voted in St James in that year, but by 1754 was in London; nothing further is known about him. Pearce, like the others, was from St James parish, and voted there in 1734 and 1739. He is in London in 1754, but had returned to Bristol by 1774, when he is in St Augustine parish (the William Pearce voting in St John parish in 1784 is probably another maker of that name who became free that year). Pearce cannot have left Bristol until sometime, probably several years, after 1748, for he and his wife Susannah took an apprentice in September that year who duly took his freedom in 1756, suggesting at least some years training were given by Pearce before he left for London.

By 1774 a quarter of the pipemakers listed in the poll book for that year were away from Bristol, and all save one of these 11 were in London or the London area. The exception is Thomas Bickham, who took his freedom in

1754 and voted in Temple parish for that year, but had moved to Bath sometime in the following 20 years, presumably between May 1768 when a son Joseph is apprenticed and Bickman is referred to as a Bristol pipemaker, and 1774. Even he, however, took the trek to London shortly after, for in 1781 and 1784 he is recorded voting from Lambeth. Already in 1774 Samuel Tuckey who had become free in 1754 and voted that year in St James, is voting from Lambeth; in 1781 and 1784 he has crossed to the north side of the Thames. Samuel Richards jr became free in 1774 in which year he voted from Woolwich. He is the pipemaker who gave periodic work to John Frederick Bryant jr the poet until he (Richards) returned to Bristol, "having married a young woman with some considerable expectations" (Bryant 1787: xx, xvii-xviii, xix) - this must have been over the period ca.1774-78. (Bryant tried to rent Richards's business, but the latter's landlord, having been earlier lampooned in verse by Bryant, refused to rent, and Bryant was unable to afford to buy out the business, move it, and erect a new kiln.) Richards returned to pipemaking in Bristol where his father, uncle, and grandfather had been or were pipemakers (though his uncle, Henry, as noted below, was working in London), for the 1781, 1784, and 1812 polls list him in Temple and the trade directories list him, and after him his son Samuel III F 1812, at Thomas St (now St Thomas St) - latterly at least at number 34. That his business weathered the storms at the end of the C18 is suggested by this Samuel and his wife Ann taking an apprentice in 1783 (another apprentice taken 1814 by Samuel and Susannah Richards is more likely to have been taken by Samuel III.)

In London proper Coules was still there in 1774 and with him seven other Bristol pipemakers. These are:

- Jonas Edwards [jr]: F 1747, voting in St James 1754, but from London 1774, 1781, and 1784;
- Samuel Lewis: F 1774 and votes in that year from London; voting from Lambeth 1781 and Southwark 1784, prob. the Samuel Lewis noted in Southwark 1799-1805 (Oswald 1960a: 80 and Atkinson and Oswald 1969: 211);
- Henry Richards: F 1774 and votes in that year from London, also votes from there 1781;
- William Russell: A 1757, F 1768; voting from London 1774, 1781, and 1784, poss. the William Russell noted in London 1805 (Oswald 1960a: 91);
- Henry Wickham: A 1765, F 1774 and votes in that year from London; votes from Brentford, Middlesex, 1781 and 1784;
- Josias Wickman: F 1739; voting in St James 1739 and St Philip and Jacob 1754; voting from London 1774, 1781, and 1784;
- William Young jr: F 1774 and votes in that year from London; votes from London 1781 and from Lambeth 1784.

Whether all those listed were actively or even occasionally engaged in pipemaking is, of course, unknown, but it is probably significant that a number of them do appear at addresses in East London, a centre for London pipemaking since the early C17, and that Lambeth and Southwark, also listed, were areas where London pipemakers worked (see 4: VI, also ref. in 5: I).

In 1781, 18 out of 45 makers listed in the poll book of that year are outside Bristol, or 40%. Again the overwhelming majority of those 18 are located in or near London; indeed, only 2 are not. Of these, one, William James (F 1756) appears in the 1774 polls in St James, but by 1781 has removed to "Eaton", Buckinghamshire - presumably Eton of public school fame. The other is James Huish, who became free 1781 and votes in that year from Ashwick, 3-1/2 miles NNE Shepton Mallet, Somerset; but he had returned to Bristol by 1784, for he votes in Temple in that year and in 1812, 1818, and 1820 votes in St James.

In the London area Samuel Lewis is in Lambeth and Henry Wickham at Brentford, and Thomas Bickman has moved from Bath to Lambeth. Thomas Cole (A 1764 F 1774), who voted in 1774 in St James, has moved by 1781 to Deptford; by 1784 he has crossed to the north bank of the Thames and is in East London, where he still is in 1812. In London itself five new Bristolians have appeared. They are:

Isaac Bickman: F 1774; votes in St James that year, but voting from London 1781, 1784, 1812, and 1830;
Joseph Cousens: A 1759, F 1774; votes in St James that year, but voting from London 1781 and 1784;
Samuel Harris: F 1781 and votes in that year from London;
Isaac Lewis: F 1768; voting from London 1781;
William Smith: F 1756; votes in St John 1774, but voting from London 1781.

They join Joseph Coules, Jonas Edwards, Henry Richards, William Russell, Samuel Tuckey, Josias Wickman, and William Young jr already in London.

By 1784 there were almost as many Bristol pipemakers away from the city - 21 - as there were remaining in the city - 23 - and this suggests graphically how calamitous had been the decline of the industry in Bristol following the loss of the North American colonial trade. The drain in makers from St James parish is particularly heavy. It seems likely, indeed, that this period saw the lowest point in the fortunes of the Bristol pipemaking industry, for as has been noted in Section IV above and is noted in Section VI below the industry is reviving from ca.1805. Unfortunately, the lack of contested elections in Bristol between 1784 and 1812 prevents poll-book evidence being available on this point, but certainly by 1812 the pattern has changed for only three expatriate voters, all from London, are noted compared to 21 in Bristol.

In 1784, Isaac Bickman, Thomas Cole, Joseph Coules, Joseph Cousens, Jonas Edwards, William Russell, Samuel Tuckey, and Josias Wickham are in London; Samuel Lewis is in Southwark; Thomas Bickmam and William Young jr are in Lambeth; and Henry Wickham is in Brentford. Eight more Bristolians are in London and one more in Southwark; none are recorded outside the London area, emphasizing again how big a role London has always played for people from the provinces seeking their fortune there. The addresses given for these expatriates are consistently in the poorest areas - some of the actual streets are noted ca.75 years later in Beames's survey of London slums (Beames 1850: passim, 1852 ed) - and these areas are known from other evidence (e.g. Bloice in Atkinson and Oswald 1969: passim) to be areas where London pipemakers worked. However, again one must be careful to note that not all those Bristol expatriates recorded need have been working as pipemakers. John Frederick Bryant jr the poet returned to London, as we know from his own account, sometime before 1787 to set up as a stationer, bookbinder, and printseller at Long Acre and appears to have been prosperous in his new trade, moving to the Strand and dying there of consumption in 1791 (Bryant 1787: xxxiii; Southey (ed) 1831: 156, 162); as he appears in the 1784 poll book as voting from London he must have returned there by that date, but in view of his new trade was obviously not working there as a pipemaker, which the poll-book entry might imply.

The eight new Bristolians in London by 1784 are as follows:

John Andrews: F 1780; voted in St Michael 1781, but voting from London 1784;

John Frederick Bryant jr (see above): B London 1753, fl ca.1774 London, F Bristol 1780, in London as a stationer etc by 1784 when votes from there, D London 1791;

John Frederick Bryant: cousin of John Frederick Bryant above, F 1780; voting from London 1784;

John Edwards: F 1784 and votes in that year from London; votes from London 1812 but from Bristol 1818;

William Lansdown: F 1784 and votes in that year from London; surname also spelt Landsdown and perh. related to the William Lan(d)sdown fl London 1832-48 (Oswald 1960a: 81 and Atkinson and Oswald 1969: 222);

Samuel Pearce sr: F 1754; votes in that year in Christchurch and in St Philip and Jacob 1774 and 1781, but voting from London 1784; referred to as "deceased" when son William F 7 April 1784 - as Bristol voting ran from 3 April to 8 May either Samuel died between 3 and 7 April or his vote cast illegally (the latter possibility is by no means remote, see Section IV above);

Samuel Pearce jr: F 1781; votes in that year in St Philip and Jacob, but voting from London 1784;

William Showell: fl 1775, A 1776, F 1784 (for problem of his being in business before being apprenticed see Section IV above, also Appendix IX); votes from London when takes freedom.

As noted above, there were no contested elections in Bristol after 1784 until 1812. All other evidence suggests pipemaking in Bristol was at a low ebb in the 1780s and 1790s, during which period there was also a succession of bad harvests (Latimer 1893: 485, 515-6, 531); and it would not be surprising if the drift of jobless pipemakers from Bristol to London continued until the beginning of the C19 - it may well have been that there was at one time more Bristol pipemakers in London than in Bristol.

By the 1812 election however, the Bristol industry is regaining its feet, though it is still smaller than it had been at any time in the C18. Twenty-one makers in the city voted in the election of that year, and only three out-voters were recorded, all from London. They were Isaac Bickman, Thomas Cole, and John Edwards, all of whom had been in London or the London area for many years by this time - Bickham and Cole since 1781 and Edwards since 1784. This probably suggests they had been lucky enough to establish a business and make it succeed, but one wonders how many others failed and turned to other occupations. John Frederick Bryant jr records how he went to sea but was turned down because of poor eyesight (possibly caused by the glare from the pipe kiln), and how between periods of unemployment he worked in the London area as a labourer, a jobber at the rope-grounds, a stevedore, a hod-carrier for bricklayers, a member of a press-gang (whose humanity he noted), as well as a pipemaker, and recalls his privations (Bryant 1787: xv-xviii); one may guess that others were no luckier, and indeed may have been less fortunate, for Bryant's story at least had a happy ending, his verse attracting a noble patron who enabled Bryant to set up his business as a stationer, bookbinder, and printseller and spend the remaining seven or eight years of his life in some comfort.

The 1812 poll book also records a feature which, as is also noted in Section VI below, becomes increasingly noticeable as the C19 progresses. This is the concentration of pipemakers in St Philip and Jacob parish, particularly in the out-parish (that is, the part beyond the city boundary until it was absorbed in 1835). Already in 1812 nine of the 21 pipemakers recorded voting in Bristol were in St Philip and Jacob, 6 of them in the out-parish and 4 of these in the Gt Ann St-Gt George St ghetto later known as St Jude's which was to house most of Bristol's C19 pipemakers.

In the main, the C19 trends of the Bristol pipemaking industry are indicated in the table below listing pipemakers' votes cast at various elections divided out by parish.

	1812	1818	1820	1830	1832	1835	1837	1841	1852
Castle Precincts	2	-	-	-	-	-	-	-	-
St Augustine	1	2*	1	-	-	-	-	-	-
St James	3	2	2	-	-	-	-	-	-
St Mary Redcliff	1	-	-	-	-	-	-	-	-
St Michael	-	-	2	-	-	-	-	-	-
St Philip and Jacob In-parish	3	1	1	1	1	1	-	-	-
St Philip and Jacob Out-parish	6	7	9	12	12	10	6	12	10
St Thomas	1	-	-	-	-	-	-	-	-
Temple	4	2	1	6	1	1	-	2	2
sub-totals	21	14	16	19	14	12	6	14	12
OUTVOTERS	3	1	-	4	-	-	-	-	-
totals	24	15	16	23	14	12	6	14	12

*Includes one maker William Okely of Host St who in the 1820 election is listed, though still on Host St, in St Michael. Host St in fact lies in both parishes, the boundary at one point running down the centre of the street. Directory entries of this time indicate Okely's business was on Under the Bank (now the west side of Colston Ave) which is in St Augustine and that he lived on Host St lying directly behind. As no number for his home is given it is not possible to determine in which parish it lay; he may, of course, have changed houses between 1818 and 1820.

As can be seen, the out-parish of St Philip and Jacob rapidly becomes the pipemaking centre of the city, entirely taking over the position St James had had the previous century; and after 1830 is overwhelmingly dominant, with virtually all the makers in the St Jude's ghetto and only Temple of the other parishes having any other pipemakers at all. Outvoters too cease to appear after 1830.

One feature, however, which is not reflected in the poll figures is the steady increase in pipemakers as indicated by directory evidence (see following section): on the evidence of the table above one would suppose the industry to be dying in Bristol from 1830 onwards, when directory evidence indicate the zenith of the industry in the C19 was in fact the 1840s and 1850s, with the rapid collapse occurring only in the 1860s. Why there should be this discrepancy in the evidence is uncertain, but as noted in the preceding section after the 1832 election freedom was no longer an important means of gaining the vote, and this together with the virtual cessation of pipemakers taking their freedom after the 1830s suggests those pipemakers who voted after 1830 did so as conscientious citizens, those who did not being uninterested in the elections and no longer having their votes bought.

The vote-buying orgies of the early C19 elections have already been noted in the preceding section, those of 1812 and 1830 being apparently particularly spectacular. At the former, for example, 75 individuals became freemen by marrying widows of deceased freemen, and it was alleged many of these marriages had been terminated at the church door. As noted in the preceding section only two pipemakers - Jonathan Dark in 1812 (he is actually consistently referred to as a "pipe burner") and John Parker in 1818 - took their freedom by marrying widows of freemen, and whatever their motives for obtaining their freedom thus they did vote regularly at succeeding elections, perhaps suggesting some sense of social duty at least in the case of Parker who voted at elections after vote-buying had ceased. Dark voted in 1812, 1818, and 1820; Parker in 1818, 1820, 1830, 1832, 1835, and 1837. Two pipemakers who took their freedom in 1812 - William Bye (married daughter of a non-pipemaker freeman) and James Kelly (obtained freedom similarly) - and two who became free in 1830 - William Dowdeswell (son of a non-pipemaker freeman) and Richard Moon (son of a pipemaker) - each voted only at the election for which he had presumably taken his freedom: one might suggest these were bought votes of people not really active pipemakers at all, but one must recognize the possibility of their dying or leaving Bristol between one election and the next as equally reasonable alternative explanations. No other references appear to any of these four makers, but the Moon family is certainly recorded up to 1841 and listed as pipemakers in the 1830s.

As noted above, the poll-books recorded how the electorate cast their votes, and from this one can compare how pipemakers voted with how Bristol voters as a whole voted. However, in view of the unashamed manner in which votes could be bought, it would be unrealistic to suppose an examination would reveal any significant political or social trends; and the very small number, proportionately speaking, of pipemakers compared to Bristol voters as a whole makes comparisons of pipemakers who voted for various candidates with proportions of votes to candidates from the Bristol electorate as a whole of very dubious validity.

By and large, pipemakers appear to have voted conventionally enough, the most popular candidates as represented by most votes from pipemakers generally agreeing well enough with those candidates elected. As noted earlier, Bristol returned two candidates representing the whole of the city until the 1885 election, so that voters were allowed two votes (except, for example, in by-elections such as those in 1739 and 1781 listed below where there were only two candidates). A fairly consistent feature of this system was voting for, say, candidates A and B if one exercised both one's votes but if voting for C not to exercise one's second vote (in other words, votes for A and C or B and C tend to be rare).

In the C18 the only occasion on which there appears to have been a possibly significant difference between how pipemakers voted and how Bristol's enfranchised at large voted is the 1781 by-election which as described in the preceding section was the one where Daubeny beat Cruger. Daubeny collected all told 3,143 votes to Cruger's 2,771 but the latter had more than double the votes among pipemakers compared to Daubeny - 31 to 14.

The only other times there appear to have been any significant differences between how pipemakers voted and how the Bristol electorate at large voted were in the 1812, 1818, and 1841 general elections. In the first, pipemakers showed a marked preference for Sir Samuel Romilly (18 votes as compared to 8 for each of the two candidates next most popular with pipemakers) who was in fact unsuccessful, gaining only 1,685 votes as opposed to the successful candidates, Mr R.H. Davis and Mr Edward Protheroe sr, who obtained respectively 2,910 and 2,435 votes.[26] There may have been some political significance here, for though both Romilly and Protheroe were Whigs Romilly represented the progressive elements in that party, who were beginning to be called reformers, whereas Protheroe opposed Catholic emancipation and was to give considerable support to the Tory government, including their suspension of the Habeas Corpus Act in 1817 (Latimer 1887: 51, 82; Beaven 1899: 171).

Romilly in fact withdrew from the election on the ninth day of voting because of, as Latimer puts it (1887: 51), "a coalition between Mr. Davis and Mr. Protheroe, or at least between the two political sections of the West India interest, which heartily concurred in detesting the anti-slavery principles of Romilly". As the Romilly party had placed ca.600 freemen on the burgess rolls (Davis and Protheroe had between them placed ca.1,100 freemen on the rolls) it would be difficult to say whether the pipemakers who voted for him did so out of belief in his political views; but there may have been some sympathy for them, for in the 1818 election, when again a progressive Whig candidate - Col H.D. Baillie - was put forward as an alternative to Protheroe, 12 pipemakers voted for him as opposed to only 3 for Protheroe. Once again, however, Protheroe won, again coming second to Davis. Latimer makes no mention of vote-buying at this election, but he does note that Baillie's supporters petitioned against the return on the ground that the polls had been prematurely closed (there had been only four days' voting) and that nearly a thousand non-resident freemen had been prevented from voting (Latimer 1887: 82). (In 1820 Baillie was again put forward as an alternative Whig candidate, but without his permission, so that he received only 115 votes (Latimer 1887: 88; Beaven 1899: 171) - one was from a pipemaker.)

The 1812 general election was enlivened, as had been the by-election earlier the same year, by "Orator" Hunt, at this time a London blacking maker, presenting himself as a candidate. He had tried unsuccessfully to stand in 1807, having recently started a brewery at Jacob's Wells at Clifton, and was to become famous as a Radical demagogue and champion of such things as annual parliaments and universal suffrage. He obtained only 235 votes in the 1812 by-election but came forward again in the general election - "Mr. Hunt, whose hand was against all respectable persons and parties, offered himself as the champion of democracy", as Latimer (1887: 51) tartly puts it - to collect 456 votes. Of these, 8 were from pipemakers, the same number as that collected by the Tory Davis, though less than half the 18 for the progressive Whig Romilly. Those individualists who voted for Hunt do not deserve to go unmentioned: they were Thomas Appleford, James Huish, William Bye, James Edgar, John Ballard, Arthur Roberts, Thomas Cole, and John Edwards (the last two are listed from London). All save Roberts, who gave his second vote to Protheroe, also voted for Romilly, which together with the large number of votes Romilly received from other pipemakers suggests that in this election at least a working-class radical element did appear.

In 1841 Mr W. Fripp obtained 10 pipemakers' votes but finished last of three with 3,684 votes whereas Mr F.H.F. Berkeley, who was second with 3,739 votes received only 4 pipemakers' votes. Fripp was one of two Conservative candidates, Berkeley being a Liberal; the other (successful) Conservative was Mr P.W.S. Miles who received the votes of 11 pipemakers and was 454 votes ahead of Berkeley. According to Latimer (1887: 256), there was a falling-out between Miles and Fripp which temporarily disrupted the Conservative party in Bristol; but there appear to have been no major local political issues which would have made voters choose one candidate over another, and in view of the marked preference - 21 votes out of 25 - indicated by pipemakers for Conservatives it is possible this does represent a political sentiment among this class at that time. A comparison with votes cast by voters in similar working-class trades might be instructive.

The 1830 election in its turn was enlivened by the candidature of James Acland who since 1827, first in Bristol and then in Kingston upon Hull, had been publishing radical and scurrilous newspapers and feuding over the stamp duty then imposed on such publications when not in jail for libel (Latimer 1887: 118-20, 137-8). Acland, a Radical, obtained only 25 votes, but one pipemaker - James Moon F 1808 fl 1841 - voted for him. It is difficult to determine any significance to this unless Moon, having already cast one of his votes for the only Tory did not wish to vote for either of the two remaining candidates who were both Whigs, and preferred to waste his second vote. Certainly Moon always cast at least one vote for a Tory or Conservative candidate in the elections at which he voted, 1812, 1818, 1820, 1830, 1832, and 1841; on the other hand in 1832 he also voted for Edward Protheroe jr, one of the two Reform candidates at that election, when he had voted for Sir Richard Vyvyan, an anti-Reform Bill Tory, and could have voted for Baillie, who though a progressive Whig was not as advanced in his views as the two Reform candidates and was in fact supported by the Tories as the other Bristol Member for this reason (Latimer 1887: 185-6; Beaven 1899: 172).

In 1832 the conservative Vyvyan and the moderate Baillie were elected over the two Reform candidates, and in so far as the votes of such a small group as the pipemakers' are significant, their votes did accurately represent this, for Vyvyan and Baillie who came first and second obtained 11 and 8 respectively and Protheroe and Williams who came third and fourth, 6 and 3. On this evidence there is nothing to suggest pipemakers at this time at any rate were other than entirely average voters, with no undue radical tendencies. Allegations of wholesale bribery and freedom-buying were made following the election, but apparently no proof of curruption was produced and a committee of the Commons upheld the election (Latimer 1887: 185-6). Political fervour is a fickle thing, however - the previous year (1831) Reform zeal had run so high in Bristol and the two Reform-Whig candidates, Baillie and Protheroe, had swept the seats unopposed, the anti-Reform Bill Tory incumbent from the 1830 election, Davis, withdrawing his nomination (Latimer 1887: 142-3).

With the division of Bristol into four constituencies - North, South, East, and West - voting in 1885, the first election held under this arrangement, indicated Bristol to be predominantly Liberal, only Bristol West returning a Conservative (Latimer 1887: 531; Beaven 1899: 174-5). Bristol East, within which St Jude's fell, was very strongly Liberal, the winner collecting double the votes of his Conservative rival. Bristol East in fact remained Liberal throughout the remainder of the C19, but the first Bristol Labour candidate, J.H. Wilson, stood in that constituency in the 1890 by-election when he collected 602 votes (the Liberal winner received 4,775 votes). In the first 1895 election in the constituency, a by-election, the Socialist H.H. Gore gained no fewer than 3,558 votes, only 182 fewer than Sir William Henry Wills (later Lord Winterstoke)[27] the Liberal candidate; however, in the general election later that year Wills obtained more than double the votes cast for the Labour candidate S.G. Hobson. After the 1890 election no Conservative contested the constituency and in 1892 the Liberal incumbent, Sir Joseph Dodge Weston, was actually returned unopposed.

Unfortunately, no poll-books for Bristol later than 1852 appear to have survived, and in any case after 1872 poll-books were no longer used, but it would have been interesting to trace the trend to liberalism and thence to socialism in the last half of the century (Beaven 1899: 175). With the collapse of the pipemaking industry in the 1860s one might have found an increased tendency towards Liberalism among pipemaker voters; Bristol was consistently Liberal in the second half of the C19 (Beaven 1899: 172-5). By the 1890s the pipemaking industry was almost dead; how pipemakers voted is therefore a largely hypothetical question, but in view of the evidence for pipemaking being a typical industry of small independent craftsmen, the probability is that at least the proprietors of businesses and independent craftsmen would not have voted for the emerging socialism of the period.

The following table compares total votes cast for candidates compared to votes cast for them by pipemakers as noted in the poll-books which have survived and list occupation and for whom votes were cast.

ELECTION	CANDIDATE	TOTAL VOTES	PIPEMAKERS' VOTES
1722	Earle (Whig)	2,141	28)
	Elton (Whig)	1,849	29)
	Hart (Tory)	1,743	19
1734	Elton (Whig)	2,428	22)
	Coster (Tory)	2,071	27

	Scrope (Whig)	1,866	18)
1739 (by-election)	Southwell (Whig)	2,651	43
	Combe (Whig)	2,203	18
1754	Nugent (Whig)	2,592	27
	Beckford (Tory)	2,245	26)
	Philipps (Tory)	2,160	28)
1774	Cruger (Whig)	3,565	36)
	Burke (Whig)	2,707	26)
	Brickdale (Tory)	2,456	16
	Clare (Tory)	283	0
1781 (by-election)	Daubeny (Tory)	3,143	14
	Cruger (Whig)	2,771	31
1784	Brickdale (Tory)	3,458	23)
	Cruger (Whig)	3,052	21)
	Daubeny (Tory)	2,982	22
	Peach (Whig)	373	4
1812	David (Tory)	2,910	8
	Protheroe sr (Whig)	2,435	6
	Romilly (Whig)	1,685	18)
	Hunt (Radical)	456	8)
1818	Davis (Tory)	3,377	13)
	Protheroe sr (Whig)	2,259	3
	Baillie (Whig)	1,684	12)
1820	Bright (Whig)	2,997	16)
	Davis (Tory)	2,811	12)
	Baillie (Whig)	115	1*
1830	Davis (Tory)	5,012	19)
	Baillie (Whig)	3,378	15)
	Protheroe jr (Whig)	2,842	7
	Acland (Radical)	25	1
1832	Vyvyan (Tory)	3,697	11)
	Baillie (Whig)	3,159	8)
	Protheroe jr (Reform)	3,030	6
	Williams (Reform)	2,741	3
1835	P.J. Miles (Conservative)	3,709	9)
	Vyvyan (Conservative)	3,313	8)
	Baillie (Liberal)	2,518	4
	Hobhouse (Liberal)	1,808	2
1837	P.W.S. Miles (Conservative)	3,839	4)

	Berkeley (Liberal)	3,212	1
	Fripp (Conservative)	3,156	5)
1841	P.W.S. Miles (Conservative)	4,193	11)
	Berkeley (Liberal)	3,739	4
	Fripp (Conservative)	3,684	10)
1852	Berkeley (Liberal)	4,681	7)
	Langton (Liberal)	4,531	6)
	McGeachy (Conservative)	3,632	6

(Pipemakers' votes followed by a closing round bracket denote whichever combinations of votes were most common - this tendency has been noted on p.532 above.)

*Binding of poll book makes it impossible to see if pipemaker William Okely used his second vote - if so, it went to Baillie. His first vote went to Bright.

SECTION VI:
TRENDS IN PIPEMAKING AS SEEN IN THE TRADE DIRECTORIES, 1775-1921; AND IN THE CENSUSES, 1841-1911

Trade directories for the major British cities begin to appear in the later C18. They are particularly valuable not only because they replace, with annual entries, the failing apprentice and freedom rolls as sources of information but because they supply for the first time addresses, from which accurate distribution of makers can be made and economic and sociological patterns deduced. By the second quarter of the C19 directories have become sufficiently well-organized to have trades classified alphabetically, greatly facilitating their use; and classification by street follows, enabling conclusions to be drawn about various areas of the city.

Trade directories, however, are not famous for detailed accuracy, and the quality of the directory differs considerably from place to place. Bristol directories, at least those published by Matthews from 1794 to 1879, appear markedly less accurate than those of Glasgow also studied by this writer; and those for Glasgow show a noticeable improvement when the Glasgow Directory is replaced in 1828 by the Glasgow Post Office Directory.

The earliest Bristol directory is Sketchley's, in 1775. It is followed in 1783 by the Bristol section in Bailey's Western and Midland Directory.... In 1785 there appears The Bristol Directory and in 1787 the Bristol section of The Bristol and Bath Directory known variously as Bailey's or Routh's, followed by the Bristol section in vol 2 of The Universal British Dictionary of Trade, Commerce, and Manufacture in 1971 and Reed's The New Bristol Directory for 1792. The first Matthews's directory, entitled for the years 1793-94, appeared in 1794; it appeared again in 1795, 1797, 1798, 1800, 1801, 1803, 1805, and thereafter annually until it became Wright's directory in 1880. This appeared annually up to 1917, then biennially until 1923, in which year it became Kelly's and appeared annually until 1940, since when it has appeared at varying intervals and is at present biennial. The last entry for pipemaking appeared in the 1921 directory. Various other C19 directories, either for Bristol or including Bristol in a larger area, were available to the writer. These were: The Bristol Index, or Evans' Directory, for 1817 and 1818; Robson's Directory of London and the Western Counties for 1837; Pigot's Directory for 1842; Hunt and Co's Bristol and Welch [sic] Towns Directory for 1848; Hunt and Co's Directory and Topography for the City of Bristol.... for 1850; Slater's (late Pigot's) Directory for 1852-53; Scammell and Co's Bristol General Directory for 1853; the same company's Gloucester, Bristol and South Wales Directory for the same year; the Goucestershire, Herefordshire, and Shropshire Post Office Directory for 1856; Kelly's Post Office Directory of the City of Bristol for 1863; the Bristol and District Trades' Directory for 1899, 1900, 1901, 1902-03, and 1903-04; and Sharp and Co's New Bristol Directory for 1904.

Despite the problems which arise from using Bristol trade directory evidence - divergent or contradictory entries not only between different directories for the same year but between the various sections within one directory,[28] for example - the pattern of the resurgence and final collapse of the Bristol pipe industry in the C19 can be seen clearly enough from the directory entries. So too can the sudden appearance of the industrial western suburb outside Lawford's Gate - later known as St Jude's - as a veritable pipemakers' ghetto.

As a brief example of the complexitites of directory entries one can note the divergent listings of pipemakers in three directories all for 1853 - Matthews's; Scammell and Co's Bristol General Directory....; and Scammell and Co's Gloucester, Bristol and South Wales Directory. The first lists 21 makers, the second 17, and the third 27. Of the 17 in Scammell's first directory, 14 are to be found (ignoring minor differences) in Matthews's; seven that Matthews's has do not appear and three that it does not have are added. Of the seven omitted, two do not appear after 1853 in Matthews's directories, but the remaining five are known to have continued for some years - as late as 1876 in two cases. Of the three additions, two are of names which had been in previous Matthews's directories - one 1850-51, the other 1847-48 - while one is of a maker not noted in Matthews's directories until 1856. The fact that the Ring pipemaking concern is still referred to in Scammell's as being R.F. Ring when in Matthews's it had been changed to J. Ring and Son three years earlier suggests Scammell's information is not as up-to-date as Matthews's on all counts; on the other hand the listing of Joseph Pearce in Scammell's three years before that individual's appearance in Matthews's suggests some independent checking of sources. The other Scammell's directory for the same year, however, the Gloucester, Bristol and South Wales Directory, lists not only all 21 makers noted in Matthews's but two of the three additions offered by the other Scammell's and four others besides. Of the four new names, two never appear in Matthews's directories, though both are listed in Hunt and Co's Directory of 1850. Of the other two, one appears in Matthews's both before (1847-50) and after (1854-63) the 1853 Scammell's entry. The single person listed by the first Scammell's directory but not in the second is of the individual who had appeared in Matthews's directories for 1850-51.

If one wishes to add a comparison with the entries in Slater's (late Pigot's) Directory for virtually the same period - this directory is listed as for 1852-53 - yet more complexities appear. Disregarding minor discrepancies or differences (for example, the Ring entry still under R.F. Ring, the George business under Thomas George I when he had been dead 17 years, the Saunders and Guy business listed under Guy only) all makers listed in Matthews's directory for 1853 are included. In addition, one from Scammell's Bristol directory appears, two from Scammell's directory covering the West Country and South Wales, and one common to both Scammell's directories are included; while two makers who do not appear in Matthews's or other directories until later in the 1850s or the 1860s and one - Joseph Champ and Co - entirely unknown from other sources are also listed, making a total of 28. (However, as noted in Appendix IX, it is very doubtful if Champ and Co were in fact pipemakers; they actually appear to have been tobacconists and snuff-manufacturers.)

It is clear from all these listings that dealing with directory entries is not a simple matter, nor is it a straightforward case of deducing which directory plagiarized another - clearly, differing sources were being used by the various compilers. In all, the non-Mathews's directories examined and noted above had eight pipemakers who never appear in any Matthews directories:

John Davis (Hunt 1850);
John Gane (Hunt 1850, Slater 1852-53, the second Scammell 1853);
Arthur Roberts (Pigot 1842);
Mary Roberts (Hunt 1850, second Scammell 1853);
Joseph Champ and Co (Slater 1852-53);
P. Norman (Kelly 1863);
C. and G. Pardoe (Kelly 1863);
P. Roberts (Kelly 1863).

In addition, there is a tendency for these directories, when they do list makers also appearing in Matthews, to list them at an earlier date than the first Matthews entry: an example of this is Joseph Pearce, listed in Matthews only for 1856 but appearing in Pigot 1842, Slater 1852-53, and both Scammell directories for 1853. Whether there is any significance to this is uncertain: it is possible Matthews overlooked or did not bother with small makers, but certainly if these makers could be listed in more general directories one would think they would want to be included in a specifically Bristol directory such as Matthews's.

The first Bristol directory, as noted above, appeared in 1775, the year the American Revolution broke out and the Bristol pipe industry, already seriously weakened by the Stamp Act trouble of ten years earlier, collapsed with the disruption of its remaining export trade to the American colonies (see Section VII(b) below). Eleven pipemakers were recorded that year, four of them in Lewin's Mead, one each in nearby Horse St (now Host St) (FIG 149) and Lower Mauldlin Lane (now St), and one across the Frome in Halliers' Lane (now Nelson St). Two more worked in Temple St in Redcliffe; one in West St, near Lawford's Gate but inside the city; and one, William Showell, in Houlton St, outside the city to the west and very near the area where later Bristol pipemakers were to congregate so markedly. Halliers' Lane was apparently a thoroughfare of "old hovels" prior to its clearance and reopening as Nelson St in 1799 (Latimer 1893: 496), but Lewin's Mead at this time was still a respectable part of the city and not the slum it had become by the 1830s and 1840s (cf Latimer 1893: 421, 438 and 1887: 174, 296): the four pipemakers noted lived in the company of two aldermen and an expensive Quaker school.[29] Further, one of the four was John Frederick Bryant sr (listed as John Bryant at 61 Lewin's Mead in the directory) whose son, John Frederick Bryant jr, recorded in 1787 that his father had employed ten journeypeople and had had a profitable enough business to keep himself, his wife, and their nine children in some comfort until the Stamp Act troubles of 1765-66 ruined the oversea trade (Bryant 1787: viii, vii).

Clearly Bryant sr had been a successful businessman and factory-owner, and as such had lived the life of a socially-respectable citizen. This is borne out by his son's recollections about family life in the prosperous times before the Stamp Act. He, the son, had been able to indulge his leanings towards the arts while the father, an amateur violinist skilled enough to be asked sometimes to play at the Assembly Rooms, was acquainted with most of the Bristol and Bath musicians, who sometimes held their rehearsals in the Bryant house (Bryant 1787: vii) - which last point suggests a home of some size. Even after Bryant sr's business had been reduced to a shadow of its former prosperity he was apparently still a respected citizen, for his son, who wanted against his father's wishes to go to sea, remarked it would have been useless for him to look for a ship in Bristol "my father being so well known and respected in that city, that I should not easily have found a merchant or master of a vessel that would have employed me without his consent" (Bryant 1787: xv). Because the son does not suggest anywhere in his reminiscences that the father was the leading Bristol pipemaker, it is perhaps reasonable to assume he and the three other makers who lived in Lewin's Mead - Israel Carey, Susannah Lee, and William Nicholas - were of comparable prosperity. If so, they were presumably the four wealthiest pipemaking concerns in the city, though possibly Anna Viner working in Host St should be added to these four, as her pipes have been found on two North American archaeological sites.

Certainly all, including Viner, were long-established Bristol pipemakers: Carey had been apprenticed in 1748 and become free in 1756, and was still working in 1787; Lee was the widow of John Lee A 1741/2, F 1749, fl 1765, and she is last recorded in 1785; Nicholas had been apprenticed in 1723 and become free in 1730 - this 1775 reference is the last known to him. Anna Viner was the widow of George Viner A 1740, F 1747, fl 1757, who had also exported to North America, and she is noted working until 1805. Bryant sr himself belonged to a pipemaking family, his father John having been apprenticed 1709 and become free 1716, and his two sons John Frederick jr and Samuel, his brother Samuel, and his brother's sons Isaac and John Frederick all taking their freedom in Bristol as pipemakers. John Frederick sr had taken his freedom in 1747, but not liking pipemaking had gone to London and worked as a journeyman house-painter. He married in London and remained there until 1760, when he was persuaded by a Bristol relative to return there and take up his original trade. If these five makers were indeed the major Bristol firms, and all, like Bryant, had employed about ten journeypeople, then the industry even in its lessened state compared to that in the first three decades of the century employed a fair number of Bristolians. If, like Bryant, they all had to let go their journeypeople when the industry declined sharply in the 1760s and 1770s with the effect on oversea trade first of the Stamp Act and then of the American Revolution, a considerable number of Bristol families must have been affected.

The next directory, that of 1783, indeed suggests a calamitous reduction in the size of the industry, for it lists but two makers, and while this is probably an under-estimation of the number surviving on the basis of subsequent entries, the number listed between this time and the end of the century remains between five and seven. Purely in numbers of firms - it seems legitimate to use the term for at least the bigger businesses such as that of Bryant sr - therefore, the total in Bristol appears to have been halved by the American Revolution, and if Bryant jr's account of his father's subsequent poverty and his own extreme difficulty in earning a living by pipemaking in the 1770s and 1780s is typical of the other pipemakers who struggled on - and it surely must be - then these few probably used no assistance save for their family in the attenuated remains of a once-profitable business.

The revival of the Bristol industry, in terms of the number of makers -

or more realistically, firms - recorded in the directories is not noticeable until the 1810s. With it comes the sudden movement of firms to the area beyond Lawford's Gate, so that by 1815 half or more of the makers are living in the Lamb St-Gt Ann St-Gt George St area, which remained outside the city until 1835. Excluding the William Showell noted above working in Houlton St (the extension of Wade St north across the Frome) in 1775, and Robert Carter F 1767 who voted in 1784 from St Philip and Jacob Out-parish after having been in St Michael and St James at the 1774 and 1781 polls respectively, the first pipemaker to appear in the area beyond Lawford's Gate was Nicholas Kennicott, who took his freedom in 1809 and first appears in the directory for 1810, in Lamb St. In 1815 no fewer than 7 of the 13 listed makers were living in this area. At the height of the Bristol industry in the C19, in 1850 for example, 17 of the 23 makers listed lived in this area.

Why there should have been this sudden shift by the industry at this time is not clear, though it is not without parallel in the trade elsewhere, a comparison of the census returns for 1851 and 1861 in Bath showing 8 pipemakers in Bridewell Lane and only one in Milk St in the former year but none in Bridewell Lane and no fewer than 21 in Milk St a decade later (Brown and Brown 1974: 25, 27-8). However, the area beyond Lawford's Gate had been a predominantly industrial suburb of the city since development of the area had started in the early C18 (see Section VIII below), and with the revival of the pipemaking industry under makers who appear to have owed relatively little to the C18 traditions of the industry the new area no doubt seemed logical and convenient. As noted in Section V above, the C18 industry prior to the collapse following 1775 had concentrated especially in St James parish and from all that one can deduce about its makers and their craft, worked inside the city; in the early C19 city guilds were dead and there were good economic reasons for moving just outside the city. Taxes and rents would no doubt have been lower over the Gloucestershire border (which until 1835 ran through the back of the New St Properties), employees' wages would have been lower, what city restrictions there were regulating employment or the use of properties - for example limitations on trades which involved fire or other hazard or offensive sounds, sights, or smells - would not apply. As noted earlier (p.364), a Cheapside property lease forbade pipemaking among other offensive trades - most of them noisome - and in 1858 the smell of hearthstones (whiting blocks for fireplaces or doorsteps, often made by pipemakers) were included in the characteristic mixture of smells of a Camberwell slum. After 1835 it seems safe to say the city took little interest in its new possessions beyond Lawford's Gate; in the second half of the C19 St Jude's (as it became after 1849) was probably the poorest area of Bristol and remained so well into this century (see Section VIII below).

The resurgence of the Bristol industry in the 1810s as reflected in directory entries may have been slightly premature, for by 1820 the number of makers recorded has come down to 9, but there is a slow rise throughout the 1820s and there can be no doubt of the rapid growth in the 1830s, for the number of makers recorded in 1830, 1835, and 1840 respectively jump from 12 to 18 to 21. Judging from the number of makers recorded, the high-water mark of the Bristol pipe industry in the C19 was the earlier 1840s to the later 1850s, during which time 20 and more makers were consistently recorded.

The final crash, when it comes, is sudden. Between 1861 and 1867 the number of makers recorded drops from 18 to 7, and while there is an isolated rise in 1870 to 10 the number recorded throughout the 1870s consistently averages five. By 1900 only three makers survive, and from 1912 onwards only one firm, that of Thomas George and Co of Gt George St and Old Market St, survives, to fire its last load of pipes on 9-12 December 1921 and bring an end to a 300-year old Bristol industry.

The following figures, given for five-yearly intervals from 1795 to 1915 and all taken from Matthews's directories and their successors, Wright's, illustrate this revival and final fall:

1795	6	1860	18
1800	6	1865	10
1805	8	1870	10
1810	9	1875	5
1815	13	1880	6
1820	9	1885	3
1825	11	1890	5
1830	12	1895	3
1835	18	1900	3
1840	21	1905	2
1845	18	1910	2
1850	23	1915	1
1855	19		

To talk of the period of the earlier 1840s to later 1850s as the zenith of the Bristol pipemaking industry in the C19, however, is not to suggest it was a period of any prosperity for those working in the trade, unless it be in contrast to the period after the industry had collapsed and many of those who had earned a precarious living amid the squalor of St Jude's must have been out of work. A survey of "the moral and physical condition of the labouring classes and poor of the city and vicinity of Bristol", in the form of a series of letters appearing in the Examiner from August 1850, describes the lot of a pipemaker in some detail at just this period.

Writing in the first of these letters, which appeared in the issue of 17 August 1850, the anonymous correspondent notes pipemaking was "another staple manufacture of the district" and that most of the workers were women "employed at the small 'factories' by persons who regularly carry on this trade". From this it is clear that the names appearing in the directory entries, or at any rate most of them, were indeed those of the business owners. However, the observer noted that "So soon...as a family can accumulate funds to enable them to set up an oven and purchase a mould and a little clay, it is not unusual for them to do so, and manufacture for themselves". This observation too is in line with deductions made from directory entries - succession of occupiers at the same property, for example (see below). The pipes were hawked round the public-houses in the city, but the competition thus produced had, according to the observer, reduced prices to such a degree that there was now very little profit in the trade.

The work of a widow who had taken to pipemaking on the death of her husband, a seaman, in order to keep herself and her young family, is described. The manufacturing process is noted in 2: VII. Although the widow was "not strong enough to be very expert in the business" she could when fully employed - which was not always the case - make nine gross pipes a week, the gross being reckoned as 180. Assuming she worked a six-day week she thus could make one-and-a-half gross pipes a day; from the description of their manufacture it is clear she alone did the entire process up to firing - rolling, moulding, and trimming - except for the preparation of the clay, which she paid a man to do. She was paid 4d per gross of 180, or 3s a week, and out of this paid the man who prepared the clay 5-1/2d.

The rest of the family income comprised 2s a week from a son who picked horsehair and 1s a loaf of bread weekly from the parish towards the support of her youngest child, who was a girl aged five or six. The entire weekly income for this widow and her family of three was therefore, even at the best of times, 5s6-1/2d plus a loaf of bread. Of this 1s6d went on rent for their three rooms (which had come down 3d since the husband had died) and most of the rest on bread, which was cheap. Because the only quality of butter they could afford was so bad and the amount in any case so small the bread was normally eaten dry. Potatoes were eaten twice or three times a week; at the most half or three-quarters lb of meat was bought a week, on the Saturday, and made to last as long as possible into the next week. In the week previous to the reporter's visit three lb of "griskin bones" (the griskin is the lean part of the loin of a bacon pig) had been obtained at 2d a lb; mutton and beef cost 5d or 5-1/2d a lb. The remaining expense was 2-1/2d for an oz of tea, which measured out in amounts equivalent to a large thimbleful, lasted the week. (Two elder girls worked away from home; the older occasionally gave her mother a dress.)

The family sitting-room was for the locality, the observer said, reasonably furnished. It had three or four wooden chairs, two small tables, "a fender &c., and other small matters". In an open cupboard was an array of ill-matched crockery; there were some glass and earthenware ornaments, several small coloured prints, a glass globe full of salt hanging from the ceiling - this was described as a favourite type of ornament among the poor - a branch of coral, and two religious pictures (the family was Baptist, having joined that faith because they found they could understand what was being said better than in the Anglican church).

Such was the life of a probably average pipemaker, though perhaps more proficient makers earned somewhat more by being able to produce ca.3 gross pipes a day, a figure which appears to have been about average (see 5: 11). Assuming this figure, they would have produced ca.18 gross a week and earned ca.6s a week - double that of this widow. However, in his second letter (24 August) the correspondent noted that another woman pipemaker, considered an expert, had assured him her earning never averaged more than ca.4s a week. Further, work was "just now so scarce that but little is given to anyone who cannot obtain an order for pipes, to the value of the labour they are required to perform" - in other words, the makers had to find orders big enough to cover production costs and their own wages. Within the previous three or four years, the same woman averred, the large export trade in pipes to the United States and Canada had almost entirely ceased.

This last comment is of interest because it coincides with the growth of the Glasgow pipe industry (4: IV) which was certainly specializing in the

North American trade by the 1840s and acquired almost a monopoly there until towards the end of the century. It is, however, at variance both with the trade directory evidence (above), which shows that at least in terms of numbers of businesses recorded, the 1840s and 1850s saw the height of the Bristol industry and that its final collapse was not until the early and middle 1860s; and with the census data (see below), which clearly indicates that in terms of numbers of employees with these firms the zenith of the industry was the years on either side of 1851 and that the collapse was indeed in the 1860s. In a sweated industry such as pipemaking was in the C19, however, work must always have been erratic, and it may be that the decline in available work at the time the Examiner's correspondent was writing in 1850 was no more than a temporary, though frequently-recurring, phenomenon of the trade. As noted in 1: VII(e) a swing back to pipes from cigars was noted by 1838 and this trend continued into the 1850s: it is therefore possible the decine in North American exports - which agrees with North American archaeological evidence, inasmuch as the relatively few Bristol pipes known from C19 contexts there are probably all in first-half-of-the-century contexts (see 6: VII(b)(4)) - was offset by increasing home demand and that it was the introduction of the brier in the later 1850s (1: VII(h)) which sealed the fate of the Bristol clay pipe industry. On this point, a study of the Bristol port-books should resolve matters; unfortunately, the examination of these by Jackson and Price (R. Price in litt. 18 January 1974) has not gone beyond 1818, with the C19 figures up to that point showing a fluctuating but not noticeably increasing trade, apart from a colossal figure (relatively speaking) for 1815 presumably marking the return of trade with the United States following the War of 1812, 1812-14 (no pipes at all had been exported from Bristol to the United States in 1813 or 1814).

What the business proprietor got from his factory can only be guessed at, but as a number had other investments - the George family, for example, were landlords of properties in the area according to descendants of the family, and as noted below other occupations for makers do appear in the directories - it may be suspected that some at least were modestly prosperous until the crash in the 1860s. The life of the actual maker of this period, however, was one of poverty and a grind of hard work when the work was available: a description such as this of 1850 adds much-needed flesh and bones to the bare skeleton provided by trade directory statistics.

As noted in Sections III and IV above, the apprentice- and freedom-roll entries suggest there was a retrenchment of the pipe-industry into family businesses after ca.1740. As noted earlier in this section the four businesses located in Lewin's Mead in 1775 and that of Anna Viner, which are likely to be the five major Bristol firms at that date, all represent well-established concerns; and an examination of the 11 firms listed in 1775 reinforces the impression that the pipemaking industry already held the seeds of its own decay, for with few exceptions all the makers listed were elderly and to judge from the decline in apprenticeships and freedoms were producing few heirs and successors. This in turn would agree with the observation from the freedom rolls that with the revival of the industry from ca.1805 onwards new names were appearing to replace the old families.

The following tabulation of known information on the pipemakers listed in the 1775, 1805, and 1815 directories bears out this contention:

1775

*John [Frederick] Bryant [sr]: F 1747, fl 1753-60 London, fl 1760 Bristol, D there ca.1777; son of a pipemaker John Bryant, father of two more, John Frederick and Samuel, brother of a pipemaker Samuel, uncle of two more pipemakers, Isaac and John Frederick;

*William Carey: A 1757, F 1767, fl 1775; two brothers Israel (see below) and Henry pipemakers, Israel's family pipemakers for two more generations (see below);

*Israel Carey: A 1748, F 1756, fl 1787, D by 1791; two brothers William (see above) and Henry pipemakers, son John (see under 1805) and grandson (or great-grandson?) Israel III (see under 1815) pipemakers;

William Cope: fl 1775-91, D by 1794; wife Mary fl 1794-95;

*Joseph Edwards [sr]: F 1747, fl 1792 (with son); third generation of pipemaking family dating back to Henry Edwards A 1689 F 1699, father Jonas I pipemaker, aunt Susannah married Thomas Thomas pipemaker, two brothers Jonas II and John I pipemakers, son Joseph II (see under 1805) pipemaker;

*Susannah Lee: widow of John Lee A 1741/2 F 1749 fl 1765, recorded 1775-85;

*William Nicholas: A 1723, F 1730, fl 1775;

Edward Pearce: fl 1775, poss. a confusion with Eli Pearce F 1766 fl 1774 in St John parish where Hallier's Lane (where Edward Pearce is recorded in 1775) was situated, fl St Thomas parish 1781; several other Pearce pipemakers recorded in Bristol in C17 and C18;

William Showell: apparently the William Showell apprenticed the year after this 1775 entry and F 1784, in London during 1784 election (the problem of this maker is discussed in Section IV above);

*Edward Sunderland or Sinderlin: A 1726, F 1739, fl 1775; father of William Sinderlin pipemaker, poss. related to several pipemakers Sinderling or Sunderland in Bristol in C17 and C18;

*Anna Viner: widow of George Viner A 1740 F 1747 fl 1757, recorded 1775-1805.

Of these 11, 8 - those asterisked - were all long-established Bristol pipemakers either by virtue of the length of time they themselves had worked there, or beause their family had long traditions in the industry in Bristol, or both. William Nicholas and Edward Sinderlin must have both been ca.65 in 1775. Including in the eight the deceased husbands of Lee and Viner (as founders of their widows' businesses) all save William Carey had taken their freedom before 1750. So far as one estimate age from dates for apprenticeship or freedom William Carey must have been born ca.1743 and the others over the period ca.1710-35: with the exception of William Carey, therefore, this group were all middle-aged or older, particularly considering life-expectancy in the C18 - they must all have been (or in the case of Lee and Viner, would have been) between 40 and 65.

As noted when discussing the decline of the Bristol guilds (Section II(d) above) the city finally abandoned its attempts to enforce freedom as a prerequisite for practicing a trade in the 1770s after an unsuccessful attempt in 1772 to prosecute a baker who had not served the statutory seven years' apprenticeship. This abandonment is visible in this 1775 list, for at least two pipemakers, Cope and Showell - and a third, Pearce, if indeed he is not the Eli Pearce F 1766 - were openly in business without being free, and there is no record of Cope ever taking his freedom though he and after him his wife were in business within the city for at least 20 years.

1805

*John Carey: exact identification very confused - a descendant of Israel Carey (noted under 1775), either the son F 1780 or a grandson; the problem is discussed in Appendix IX;

*Joseph Edwards [jr]: F 1774, with father (noted under 1775) in 1791-2 as indicated by entry "Edwards and Son", entry "Joseph Edwards" alone 1794-1823 presumably mainly if not wholly Joseph jr;

*Martha Oakley or Okely: widow and second wife of John Okely F 1768 fl 1791-8 but not noted in earlier directories, recorded 1800-12; husband's first wife Elizabeth daughter of Thomas Jenkins F 1733 fl 1754 and sister of Joseph Jenkins F 1768 fl 1784;

William Pike and Co: fl 1805-12;

*Samuel Richards: F 1774 and in London during election in that year, fl 1781-1812 Bristol and possibly later (difficult to separate from son Samuel III F 1812); third generation of pipemaking family dating back to Richard Richards A 1703 F 1713, father Samuel I, uncle Thomas, and son Samuel III all pipemakers;

John Ring and Co: fl 1803-83 or 1884 under various members of the family, the original John Ring I F 1806;

*Anna Viner: as entry for 1775;

John Mates Young: fl 1803-06, listed as an auctioneer and broker 1800; Mary (presum. widow) fl 1807-08.

In 1805, therefore, five of the eight pipemakers still belonged to old-established pre-American Revolution pipemaking families - John Carey, Joseph Edwards II, Martha Okely, Samuel Richards II, and Anna Viner. Of these, two - Okely and Richards - belonged to families not listed in 1775; possibly their members were working then as journeymen for other firms rather than being in business for themselves.

Here too there is evidence of makers no longer bothering to take their freedom as pipemakers: John Ring was in business at least three years before becoming free, while Pike and Young are never so recorded.

1815

*John Carey: as entry for 1805;

*Israel Carey: F 1812, fl 1812-29;

*Joseph Edwards [jr]: as entry for 1805;

*Thomas George: B ca.1765-70?, F 1812, fl 1815-37 [sic], D 1835, family in business to 1921;

*William Oakley or Okely: in business with mother 1806-12, F 1812, fl 1813-27;

Roberts and Steevens: listed for 1815 only, succeeded by Thomas Roberts 1816-35 (and Co 1816);

Ring and Cookworthy: noted in directories 1810-17 only, actually founded 1802 (see Appendix IX);

Sarah Ring: fl 1815-17;

James Sanders or Saunders: F 1812, fl 1815-38, associated with Down 1839-49 and Guy 1850-60, the latter being listed for one more year alone

(Saunders, however, possibly D sometime after 1841 - see Appendix IX);

James Sheffield: first appears as Sheffield and Haynes fl 1809-12, then alone fl 1813-25;

Joseph White: fl 1813-17;

Thomas Williams: fl 1815-21.

By 1815, as can be seen from the asterisks denoting those makers belonging to the old families, under half - 6 out of 13 - were of that category. The Carey, Edwards, Okely, and Richards families still continue, and Thomas George I joins the group by virtue of having married Ann daughter of John Okely II F 1768 and sister or half-sister of William Okely. The remainder of the makers listed are new names with no known Bristol pipemaking antecedents.

Again, makers are appearing openly without ever taking their freedom, and this has now become common. Neither partner of the Roberts and Steevens firm appears to have been a pipemaker freeman; and Sheffield, White, and Williams equally appear without ever taking their freedom, at least as pipemakers. Cookworthy of the Ring and Cookworthy concern was never a freeman pipemaker while the other partner, Robert Ring, was apparently a potter earlier who had taken his freedom as a hooper.

By 1830 the list of Bristol pipemakers includes only members of the George family as representatives of the ancien regime. Israel Carey III last appears in 1829, William Okely in 1827, Joseph Edwards II in 1823, and Samuel Richards III in 1817 (though the Okely family may have gone to London and Richards certainly continued in Swansea, being noted there in 1830). However, Philip Guy listed in 1861 and associated with James Saunders or Sanders (see 1815 list) 1850-60 must be the Philip Guy A 1812 to William Okely and F 1818 so he too is a representative (by apprenticeship) of the old pre-American Revolution pipemaking families.

It is also possible that members of the Bryant and Carey families worked as pipemakers into the second half of the C19, though they do not appear in any directory entries. The last Thomas George, who died in 1968 in his 96th year, made two lists of pipemakers he apparently remembered in the latter part of last century. One, written September 1952 and repeated in October, is headed 1880, but in a footnote Mr George says all save one (in one version) or two (in the other) he could "remember quite well in 1878" (when however, he was only five or six years old). This list includes a Bryant (no first name) on Bread St. The other list, containing some different names and written a few months later, in January 1953, includes an E. Carey working at the "Blue Factory, Great George St". This factory is presumably the Blue Works noted on the 10.56 ft to the mile OS plan of 1885, though in fact it was on River St, which runs along the SE bank of the Frome (or did until the latter was enclosed from this point onwards in its course to the Floating Harbour) and approximately parallel to Gt George St. This Carey may well have been a descendant of Israel Carey II, for the latter's directory entries (see below) suggest he occupied property which extended from Gt George St to River St (cf Section VIII below). (The list written September and October 1952 has a David Cox making pipes at the Blue Factory or as the October version has it, the "Blue Lead Factory". Mr George did not remember Cox well.)

The George family itself continued until 1921, having outstayed their last competitors in the city by ten years. Their tradition by inheritance and apprenticeship goes back, therefore, to John Okely's first father-in-law Thomas Jenkins, free 188 years earlier when the Bristol pipe industry was at the height of its prosperity.

Another sign of changing times is the appearance of pipemakers' businesses specifically called "companies". J. Thomas (1971: chapts 1 and 2, pls 48-51) notes the Staffordshire potteries evolving from an essentially cottage industry in the later C17 and earlier C18 through the master-craftsman family businesses of the mid-C18 to the factory stage of the late C18. Weatherill (1971: chapts 4 and 5) has shown that these changes were taking place earlier than Thomas had dated them, for even in the C17 the Staffordshire pottery industry was not a typical domestic industry and by the early C18 it was certainly not domestic in organization, and before 1760 it was moving towards the factory stage; but the basic trend seems certainly accurate, and some similarities to this progression can be seen in the Bristol pipemaking industry. Thomas notes (1971: 10) that from ca.1780 onwards literature on The Potteries talks of "manufactories" where Plot in 1686 and early C18 writers had talked of "potworks"; and in Bristol's first trade directory of 1775 one of the 11 pipemakers listed, Anna Viner, calls herself a "pipe-manufacturer". In the next directory, that for 1783, where she is one of only two pipemakers listed, she calls her business a "tobacco-pipe manufactory". Subsequent entries simply call her a pipemaker, but even if the earlier titles are conceits they indicate an awareness of the difference between the humble maker and the more prestigeous manufacturer - indeed, as Anna Viner pipes have been found on two sites in North America (see Section VII(b)(4) below) it can be supposed that the Viner business had some pretensions to fame. When John Okely II took George Godwin apprentice in 1795 he too was described as a pipe "manufacturer".[30]

(Robson's Directory of London and the Western Counties for 1837 divides Bristol pipemakers into "tobacco pipe manufacturers" and "pipe makers", listing nine makers in the former category and six in the latter. While this may simply be the result of haphazard organization by the directory compilers it is possible it represents a differentiation based on scope or size or simply pretentiousness of business. Unfortunately, too little is known about the businesses listed to be able to say whether the "manufacturers" were a superior group to the "makers". The Ring and White businesses (see below) are certainly listed under "manufacturers", as is the George business.)

The first pipemaking concern specifically listed as a "company" is that of John Ring and Co, first appearing in the 1803 directory and continuing as noted above as a family concern until 1883 or 1884. By 1805, again as noted above, the business of William Pike and Co had appeared, to continue until 1812. In fact, this change from an essentially family business to a small factory concern was a typical reflection of changes consequent on the industrial revolution in the later C18. Already by the 1770s John Frederick Bryant sr had been employing ten journeypeople (see reference above) and some at least of his contemporaries - Anna Viner for example - must have been employing comparable numbers, indicating that the old family businesses of the master, his wife, and two or three of his children or a couple of apprentices were passing. Pipemakers like Bryant sr were approaching the employer-merchant stage, to judge by Bryant jr's description of his family's social life and the then-respectable area in which they and several other pipemakers lived. That this was not restricted to the pipemaking industry in Bristol is indicated by a reference of ca.1800 (quoted in Oswald 1970b: 228 n.6) to there being seven pipemakers in Liverpool who employed among them 60 workmen and about as many women, giving an average of ca.17 employees per business. As already noted (4: II), the Liverpool pipe industry had rapidly expanded from the 1760s and appears to have taken over Bristol's export trade, so their pipe-manufacturers' employing nearly double the number of workers ca.1800 that Bryant and other leading Bristol makers had been employing ca.40 years previously is not surprising.

Even before the Ring entry of 1803, however, Bristol directory entries were indicating this change towards business firms - the 1783 directory lists the business of "Israel Carey and Son", suggesting the two were in formal partnership rather than the son being apprenticed to or merely earning his keep working for his father, while the 1791 and 1792 directories record "[Joseph] Edwards and Son", suggesting the same arrangement. In 1806 Martha Okely and Son are recorded at Under the Bank (where the west side of Colston Ave now stands) and continue in business until 1812, after which the son, William, continues alone. In 1812 it is noted the Okelys lived in Host St, immediately behind their pipemaking premises at Under the Bank; in 1821 Okely was living at Kingston's Buildings (now demolished), Kingsdown, an address which suggests he was now well-enough off to live in the suburbs, for Kingston's Buildings, off Portland St, appear on the very northerly extreme of the built-up area of Bristol (indeed, outside the city limits) on the map accompanying Matthews's first directory in 1794, and even on the map in Matthews's 1853 directory are still near the then-open expanse of Cotham. This separating of residence and place of work is also a sign of changing social arrangements (cf Latimer 1887: 3; also 4: VI). The appearance of joint concerns, as indicated by firm names, starting with Ring and Cookworthy founded in 1802 and Sheffield and Haynes first listed in 1809, is another indication of the changing industrial pattern of the time.

With the C19 comes a diversification of interests on the part of certain firms. From 1813 William Okely also advertises himself as an "importer of tobacco-pipe and potters' clays", an occupation eminently suitable for his business address, which was by the side of the Frome and served by the Floating Harbour. In 1818 and 1819 Okely added "and Co" to his name, and The Bristol Index directory for 1818 notes after the company's name "clay and General Merchants Tontine Warehouse No 9", suggestng Okely was expanding his business interests. In 1821 his entry reads "tobacco-pipe manufacturer, Brown Stone Potter, and Importer of Tobacco-Pipe and Potters' Clay" and in 1822 he is at Redcliff Backs on the Avon part of the Floating Harbour, with a retail shop at Redcliff Hill. He is missing from the 1824-26 directories, however, and when he reappears in 1827 it is at St John's Bridge, near his original address at Under the Bank, but in a much less favourable spot for the clay trade which he still advertises. He has changed his private residence too, for he is now at Neyler's Cottages, Horfield. This in in fact the last reference to Okely in Bristol, though a William "Okeley" appearing as a pipemaker in London in 1836 and a Mrs Amelia Oakley and presumably her son Alfred also listed in London 1850-58 (Bloice in Atkinson and Oswald 1969: 222) may be the Bristol William Okely and his widow and son, for his wife's name was certainly Amelia ("Okely" is the earlier spelling of the name, used here throughout for consistency but by the end of the C18 frequently being replaced by Okeley or Oakley).[31]

Okely was not the only Bristol pipemaker associated with the pottery trade - the Rings, perhaps the most important Bristol pipemaking firm in the earlier C19 (and certainly the only Bristol firm of the period whose products have so far been found in North America), were originally a pottery firm, and a branch of the family continued in the wholesale and retail side until 1860, though after 1816 the pottery production business passed to Carter and Pountney and later under the latter family. With various name changes, the firm still exists, though it moved to Cornwall in 1970. The pipemaking branch of the Ring family were also coal-merchants as early as 1819, however, and from 1850, when what appears to be the third generation of the family takes over the firm, the entry appears as "coal merchants and export tobacco-pipe manufacturers", suggesting the former was now the major business of the firm. The firm also dealt in clay by the 1840s.

In fact, the Ring family is probably the only family associated with Bristol pipemaking in the C19 which achieved enough business success to live fashionably in residential areas as did the White, McDougall, and A. Coghill families in Glasgow (see 4: IV) and the Henderson family in Montreal (see 4: V), Richard Frank Ring being recorded living in mid-century at Hensgrove House at Brislington, an area at that time still in Somerset and beyond urban Bristol.

The Pardoe family who returned from Bristol to restart the Nantgarw pottery works in 1833 concentrated on pipes there rather than on pottery, however (I.J. Williams 1932: 111), and possibly for this reason opened a pipeworks back in Bristol which first appears in the directories in 1847. This enterprise appears under the kname W.H. Pardoe, presumably the William Henry Pardoe who refounded Nantgarw and continued there until his death in 1867 (I.J. Williams *loc. cit.*); subsequently to 1854 he appears to have handed it over to a relative, possibly two sons, for the 1863 entry - the last - lists the firm under the name C. and G. Pardoe.

A number of other pipemakers list themselves as involved in the pottery business, but most of them appear to have wholesaled or retailed pottery while actually manufacturing only tobacco-pipes. Thus Sarah Ring, for example, advertised in 1815 as "China, Glass and Earthenware Warehouse, wholesale, retail and for exportation and manufacture of tobacco-pipes".

One family which does appear to have extensive interests both in pipemaking and pottery-production is that of White. This family is of more than usual interest, as members emigrated to Canada in the early 1860s and also produced pipes and pottery there. This enterprise has been covered in some detail by Collard (1967: 253-6 and refs, 265-6 and refs, 346 s.v. Poole & Foley, 350 s.v. White, Joseph & Sons, pls 36 and 37a) but as her account gives far more detail than the frustratingly vague information available from Bristol directories it is recounted here.[32] Joseph White III (1799-1870), who ultimately came to Canada, was the son of another Joseph, a potter, and was apprenticed to the potter J.D. Pountney as a turner in 1814. Joseph III and his younger brother James started a pottery business in Bristol in 1828 and produced Rockingham and black teapots, fancy stoneware jugs, and utilitarian articles such as spirit kegs glazed with clear leadless glaze, presumably the glaze perfected in Bristol ca.1835 by William Powell. By 1855 the two brothers were prosperous enough to retire, but a few years later Joseph III decided to try a new career as a potter in Canada.

The earliest White pipemaker to appear in the Bristol directories is the Joseph White listed in New St, St Jude's, from 1813 to 1817. This certainly cannot be Joseph III, who was only born in 1799, and seems likely not to be his father Joseph II for reasons noted in Appendix IX (s.v. White, Joseph III). The Joseph White noted as a pipemaker 1829-45 at Rich's Buildings, Redcross St - a stone's-throw from New St, but inside the city - is perhaps more likely to be Joseph II. In 1846 another pipemaker is listed at Rich's Buildings and White's entry is missing, but a Joseph jr and James White appear in 1847 at Baptist Mills and continue to be listed there until 1862. According to Pountney (1920: 268), Joseph jr and James had worked together at Redcross St from 1828 but moved to Baptist Mills in 1840 following a dispute with their father, Joseph sr (Joseph II), who was also their landlord at Redcross St; whether this James is the James White pipemaker at 10 Gt Ann St 1837-43 is unknown, though perhaps not likely. In 1829 the Rich's Buildings business is listed as "tobacco-pipe manufacturer, China and Staffordshire warerooms", and in 1847 as "Egyptian black, and Rockingham teapot, stone jug, and tobacco-pipe manufacturers", a list which corresponds exactly (minus initially the pipes) with the products noted by Collard in Canada.

In 1847 a William White appears at Rich's Buildings (the pipemaker who appears there for 1846 moves), listing as his business the imposing if grammatically weak title - "black and Rockingham teapot, stone jug, and fire-clay chimney-pot and tobacco-pipe manufacturer, Staffordshire warehouse".[33] He is listed in Matthews's directories until 1851, and in 1852 his plurality of occupations - minus the pipemaking - is taken over by another (though Slater's (late Pigot's) Directory for 1852-53 and Scammel's Gloucester, Bristol, and South Wales Directory for 1853 both continue to list William at Redcross St). Interestingly, the Slater reference indicates William manufactured pipes for export. This cannot, however, be Collard's William Daniel White, for he was born only in 1833 (see below); chronologically it could be a brother of Joseph III and James.

This leaves two Whites who appear in the directory entries unaccounted for: Daniel, noted as a pipemaker in Wade St, 1840-41; and Jacob, who appears only in Hunt's Directory for 1850, at 16 Gt Ann St. If they are near relatives of the above Whites they too could be brothers of Joseph III and James.

In 1858 a son of Joseph III, William Daniel White (1833-74) left Bristol to seek his fortune in the goldfields of western North America, and a younger son, Frederick J. (1838-1919), followed his brother to the New World, arriving in Saint John, New Brunswick, Canada, after a short time in the neighbouring province of Nova Scotia. It was Frederick who learned of a small pottery for sale at Crouchville (now East Saint John) and returned to Bristol to persuade his father Joseph III to emigrate to New Brunswick together with Joseph's wife, another son, James A. (1841-1928), and two daughters. (According to members of the George pipemaking family interviewed by the writer in Bristol in 1969, the White family was related to them. A note among papers of the last Thomas George (1872-1968) says James White of Baptist Mills pottery "married one of the Georges...went to America & was supposed to leave a Fortune no one to claim it". This Baptist Mills James White cannot have been Joseph III's younger brother James, for the latter never went to North America: if the story is true - and which George married this White seems unknown - it must have been James A. White (1841-1928), Joseph III's youngest son and eventual sole owner of the Crouchville pottery, who married into the family. He left, alas, no fortune.)

The Crouchville works, known as the Courtenay Bay Pottery, was run by the Whites from the early 1860s to the end of the 1880s; it was devastated by fire in 1885 and went bankrupt a few years later. The products of the firm included the Rockingham wares, clear leadless glazed stonewares, and tobacco-pipes of the Bristol factory, and were well-enough thought of to be bought by dealers as far away as Montreal in 1878; the firm also dealt in china, glass and earthenware, presumably imported from Britain. Joseph III died in 1870 and in 1875 his son Frederick J. returned to Bristol to assist the widow and young children of his eldest brother Joseph (see family tree) run the Bristol business, leaving James A. to continue the Courtenay Bay business. His other brother William Daniel, having failed to find his fortune in the goldfields, worked in the pottery for a short while but was said to have been a dentist by profession. Frederick J. and a son eventually returned to North America in 1893 to produce fine stonewares at 1546 S. Logan St, Denver, Colorado, where initially they had financial difficulties from the depression at that time. Frederick J. died there December 1919; when Pountney was writing (1920) one of his sons was living in Bristol, another in Cardiff (Pountney 1920: 270).

No Whites are recorded making pipes at Baptist Mills after 1862, but the Courtnay Bay concern was exhibiting and advertising pipes in the 1880s. In 1880 a travelling exhibit from Manitoba which had been at the Dominion Exhibition in Montreal that year moved to Saint John and took with them back west samples of White's pipes, saying (according to a local newspaper reporter) that the pipes were better than those imported into Manitoba from Scotland. The enthusiastic reporter's suggestion that clay pipes would join canned salmon and lobster as exports to western Canada was, alas, never fulfilled - the era of the clay pipe was dying and the Courtenay Bay Pottery appears never to have recovered from its fire five years later.

(One of Joseph III's daughters, Charlotte Amelia, married James Foley, a son of whom, James W., set up a pottery business with a Samuel Poole ca.1880 which continued until ca.1900. Subsequently each operated an independent pottery, Foley's becoming the Foley Pottery Ltd in 1921. As the Canuck Pottery (Quebec) Ltd it was re-located at Labelle, ca.80 miles

NW of Montreal, in 1964 following the destruction of the Saint John works by fire. Foley's grandson, Fenwick D. Foley, continued the family potting tradition. The firm of Poole and Foley were making tobacco-pipes, along with the usual range of Rockingham and other wares, flower pots, etc, in 1883 - the pipes were described by a reporter as of "a superior quality". In Bristol the White family continued their pottery business at Baptist Mills until the last partner died in 1875, after which his executors ran it until 1891 (Pountney 1920: 269-70); what appears from directory entries to be the firm's successor, (White's) Yate Pottery, continued at 40 Broad St, ending ignominiously as the Yate Fire Clay and Brick Company.)

The White family is exceptional, partly because a good deal of material on their history is available. Other connections between pipemakers and various trades are ephemeral and much less spectacular. James Sheffield, successor to (or possibly simply continuator of) the firm of Sheffield and Haynes (fl 1809-12) appears in 1813 as a dealer in tobacco as well as a pipemaker, and he adds the occupation of grocer in 1815 and broker in 1818 before he appears for the last time in 1825. Sheffield, however, was obviously a businessman of wide interests; other pipemakers who had a second trade generally appear to have been individuals running small independent businesses with few if any assistants beyond their family and adding other occupations to make an adequate living. George Gay, for example, who appears as a pipemaker from 1832 until 1863 when he disappears with the final collapse of the Bristol pipemaking industry, was also a carpenter throughout this time and from 1852 is listed as an undertaker as well. Edward Hill, who first appears in Hunt and Co's 1850 Bristol Directory, appears in Matthews's directories from 1852 to 1876 as a pipemaker and chimney-sweep, and it is probably he who appears at a different but nearby address in 1877 as a chimney-sweep alone before disappearing entirely.

Other examples occur. James Saunders who took his freedom as a pipemaker in 1812 because he had been apprenticed 1777 as a "china painter" to Richard Cooksworthy and continued in business for a long time first by himself, then as Sanders [sic] and Down, and then as Sanders and Guy, until 1860,[34] appears in 1826-28 as a maltster as well as a pipemaker. George James, who appears irregularly between 1817 and 1840 as a pipemaker - mostly in Lewin's Mead, which by this time was a slum (see above) - is also listed as a "biscuit baker" for the years 1826-28 (it is possible, however, he was better off then his Lewin's Mead address might suggest, for the entries for 1827-29 and "Clifton" in brackets after Lewin's Mead, conceivably indicating he lived in that residential suburb.) James presumably died ca.1840, for though no more references appear in Matthews's directories, a Mary James, presumably his widow, is listed in Pigot's Directory for 1842, again in Lewin's Mead.

The William Pike of Wm Pike and Co recorded as making pipes on Christmas St 1805-12 is presumably the William Pike recorded at the "Globe" on Christmas St 1803-21, suggesting his pipemaking venture was a side investment to his primary occupation as a publican rather than vice versa. Samuel Rich, noted making pipes 1879-81 at Albert St, St Philip's Marsh, came from a potting family which had worked in that area since at least 1865. Products appear to have been firebricks and drainpipes. Typical of the poorer craftsmen who pursued several occupations in order to make ends meet, Rich was also a beer-retailer, and his ephemeral essay into pipemaking resulted in his premises being called from 1880 onwards the "Pipemakers' Arms", under which title it still exists (FIG 146 - the present landlady (1969) says the property was originally called Avon Cottage; as such it is marked on Ashmead's plan of 1828 (FIG 147), indicating it is of some age). From 1881 the family are also grocers, and from 1891 they run a "general shop".

Such combinations of occupations were restricted neither to Bristol nor to pipemaking. Many of the Birmingham gunsmiths combined that craft with other occupations such as publican, shopkeeper, or even gentleman (Wise 1951: 70). In Bath several C19 pipemakers had a second trade: Joseph Champion II, fl 1833-56, was also listed as a fireman; Joseph Sants, fl 1837-71, was also listed after 1852 as a potter, as were subsequent members of his family; and Abraham Jones, fl 1846-54, was also listed as a lodging-house keeper. From about mid-century Sants and Jones styled themselves pipe-manufacturers, as opposed to mere pipemakers (cf p.548 above), Sants in the 1851 census being described as a "master pipe manufacturer", suggesting these individuals were at least claiming to have superior businesses. Another Bath pipemaker, James Clarke - A 1796, F 1804, fl 1833 - is first recorded in the directories as pipemaker and Mayor's Officer. He was elected Sergeant at Mace in 1824 and is then no longer listed as a pipemaker, but in 1829, after a City Council decision that Sergeants at Mace not be concerned in any other business, he resigned that position and in 1833 is once more listed as a pipemaker (Brown and Brown 1974: 24, 25). In Leicester also, several pipemakers were involved last century in more than one trade. In the second decade Richard King combined pipemaking with a grocery and chandlery shop. Between the 1820s and the 1840s Robert Bennett combined pipemaking (including the refiring of used pipes) and brush-making, and eventually gave up pipemaking to concentrate on brush-making, founding a prominent local firm. The Salisbury family business dating to before 1800 listed itself in the 1840s as "China-and-glass dealer and pipe-manufacturer" in a fashion already noted among Bristol pipemakers (Daniell 1965: 59-60). The unusual combination of glove-making and pipemaking is recorded in Derbyshire in the earlier C19. William Robinson jr of Brampton near Chesterfield was the son of a potter and pipemaker, William sr, working in the second half of the C18, who had given up the potting half of his business in order to concentrate on pipemaking but had apprenticed his son to a Nottingham draper: the son subsequently set up business in Chesterfield manufacturing gloves for the London market, apparently using at one time among his workers French officers taken prisoner of war during the Napoleonic Wars; but as his father grew older the son took a considerable share in the pipe business, frequently sending shipments both of gloves and pipes to London, and after his father's death in 1812 carried on the pipe business very successfully (Robinson and Spence 1937: 145). In York too pipemakers doubled trades in the C19 and C20: Reuben Aray was a tobacco- and snuff-dealer as well as a "tobacco pipe manufacturer" when listed in 1823, while the firm of Thomas Waddington and Son, the last York pipemakers, were latterly also drysalters in the 1920s and 1930s (R. Hill 1955). As noted earlier (p.506), the Glasgow pipemaking firm of John Waldie and Co advertised in 1909 and 1910 that they were also "bath brick and firelighter merchants"; while the Portchester, Portsmouth, firm of Leigh and Co advertised themselves as "Wholesale Dealers in Pipe-Clay, Bath-Brick and Hearthstones" as well as dealing in pipes, putty, and whiting (C. Green 1973a). Dealing in pipeclay, putty, and whiting were obvious sidelines for a pipemaking concern (p.172 above) - indeed, the Edinburgh pipemaking firm of Christie's produced blocks of whiting for ca.20 years after it had stopped manufacturing pipes, finally closing in 1962 (p.341 above). The Manchester firm of pipemakers, W.H. Pierce and Co, one of whose pipes have been found at Fort Laramie, Wyoming 1834-1938 (R.L. Wilson 1961: 133, 131 pl V,5 and 1971: 21, 64 fig 8,E) first appears in the trade directories in 1864 as "dealers in tobacconists' fancy goods" and subsequently as "importers of fancy goods", "importers of tobacconists' fancy goods", and "importers of tobacconists' fancy goods, meerschaum pipes and cigars" before adding pipe-manufacture to the list in 1877 together with advertising as agents for "J. & P. Lewey (London), cigar manufacturers". In 1879 the company appears with its most impressive listing,

> tobacco pipe manufacturers, importers of tobacconists' fancy goods, manufacturers of silver screw bands, rims, covers etc. and cigar importers, and agents for J. & P. Lewey (London), cigar manufacturers.

The firm continued to be listed as pipe-manufacturers and importers of tobacconists' fancy goods until 1901; what seems to have been a branch, listed simply as W.H. Pierce (no "and Co") and later with W.H. or William Pierce and Co appended in brackets, is listed from 1871 first as a tobacconist, beer retailer, and dealer in fancy goods, and subsequently simply as a dealer in fancy goods until 1895 when this business too lists itself as pipemakers and also continues until 1901 (Manchester Public Libraries *in litt.* 1 February 1974). Chadwick (1973: pl 211) shows W.H. Pierce and Co's premises at 3 Watling St, Shudehill, where the directories record the firm 1884-85: they appear to have had the second storey of an at least three-storey brick warehouse and liberally advertised themselves on their frontage, each of three windows having PIPES/CIGARS advertised on their lower parts and three medium-sized noticeboards flanked by two large-sized ones being attached to the wall between the windows. The left-hand board reads IMPORTERS/OF/MEERSCHAUM/PIPES/BRIAR PIPES/CIGAR/TUBES/FRENCH/DUTCH/& IRISH/CLAY/PIPES; the three medium-sized boards are all marked W.H. Pierce/*& cº*/, the left-hand of them continuing CLAY PIPE/Manufacturers/WORKS/KIRK STREET, the centre one reading IMPORTERS/OF/TOBACONNISTS/FANCY GOODS, and the right one CIGAR/MERCHANTS; while the extreme right board is too far away to have anything more than isolated words visible - those that can be read are PIPE STEMS, VESUVIANS, and PRACTICAL (Vesuvians were a form of smokers' match designed to light outdoors in all weathers invented in 1849 and used throughout the C19, though by 1926 they were little used (Christy 1926: 150-1; 1928: 291, cf Betjeman 1969: Fig 75)).[35]

It is possible in fact that the majority of Bristol pipemakers had other sources of revenue: a grand-daughter of the last Thomas George pipemaker remembered he was a landlord of some of the dwellings in the area, and was soft-hearted about collecting rent from his poorer tenants. Evidence for this sort of investment would not appear from trade-directory entries, though it would from the as-yet unstudied property-deeds of the St Jude's area (see Section VIII below). Certainly a large enough proportion combined pipemaking with other occupations to suggest that pipemaking in Bristol even at the time of its greatest number of makers in the C19 - the years on either side of 1850 - was a below poverty-level trade for those engaged in the actual manufacture (cf 1850 reference above). (In the C20, as their pipemaking business drew to a close, the George family diversified at their market St property - now demolished for the Underpass - becoming involved in glass-bottle importing, a garage, and the "Bunch of Grapes" public house in the 1910s-1930s.)

Apart from Elon Golding (fl 1850-63), who listed himself as a "plain and fancy glazed pipemaker", and Thomas John Corcoran's detailed advertisement in the 1892 Wright's directory listing "Irish, Straws and Meerschaum Patterns...Assorted cutties" and offering to stamp the customer's name and address on the pipes, there is little to indicate Bristol produced a varied repertoire of pipes; the listing (see below) in 1884 of a Bristol agent for Southorn of Broseley pipes suggests Bristol pipemakers did not aspire to the heights achieved by their forerunners 150 years or so earlier. William Pratt, listed as a pipemaker 1835-43, added "and Mould" after his address for his first four years, indicating there was at least one local source of moulds for Bristol pipemakers who wished custom-made designs.

As noted above, the 1841 census abstracts are the first to present a detailed breakdown of occupations. Unfortunately both the type of evidence and the manner in which it is presented tend to vary with each census, so that it is difficult to make detailed comparisons between census years, but the abstracts do present useful information nevertheless.

In 1841, a total of 226 pipemakers, of whom 85 were male and 141 female, were recorded for "Bristol City, with Barton Regis Hundred". Sixty-four of the males were twenty years of age or over and 21 were under twenty, while 108 of the females were twenty or over and 33 under twenty.

In 1851 the pipemaking evidence in the abstracts is slightly obscured by the inclusion of an "others" group along with that of pipemaker. What these "others" were is not known: in 1881 and 1891, as noted below, "Snuff Box, &., Maker" was added to the entry for pipemakers, but the 1841 and 1861 abstracts make no additions to their entries and it seems unlikely the "others" represent a significant addition to the 1851 total. The 1851, 1861, and 1871 abstracts all group pipemakers in the category including earthenware manufacturers and earthenware and glass dealers, so presumably the "others" must have been in closely-allied occupations; the 1871 abstracts do actually have a separate "Others" entry in this category with two such individuals noted in Bristol.

The total number of pipemakers "and others" recorded for Bristol in 1851 is 260, of whom 94 were male and 166 female. Of the males, 68 were aged twenty or over and 26 were under twenty; of the females, 126 were twenty or over and 40 were under twenty.

In addition to the above data, the 1851 abstracts give a breakdown by five-year groups of the ages of employees: here, figures for Bristol are not available, the city being included under Gloucestershire, but as the Gloucestershire total of pipemakers is only nine more than that already given for Bristol the figures can be regarded as representative of Bristol pipemakers. The breakdown is as follows:

Age	MALES	FEMALES
5-9 yrs	-	1
10-14 yrs	13	10
15-19 yrs	15	26
20-24 yrs	13	29
25-29 yrs	15	24
30-34 yrs	13	16
35-39 yrs	15	14
40-44 yrs	8	5
45-49 yrs	6	5
50-54 yrs	3	8
55-59 yrs	4	4
60-64 yrs	3	8
65-69 yrs	-	3
70-74 yrs	1	4
75-79 yrs	-	2
80-84 yrs	-	1
TOTALS	109	160 = 269

The 1851 abstracts also give some evidence for the number of workers employed in various trades by individual Masters, but unfortunately this is a very incomplete listing - the preamble to this section indicates that many, in some trades all, masters omitted this information. These figures also are not available for Bristol separately but only for Gloucestershire, but as is discussed later they too are of use when considering Bristol pipemaking, patchy though they are. In fact, only five master pipemakers in Gloucestershire recorded the number of their employees, three indicating they had 3 employees each, one that he had 5 and one that he had between 30 and 34.

In 1861 the abstracts list only those employees aged over twenty for Bristol, and these returns are divided into two areas labelled "Bristol" and "Clifton", the former having 13 males and 27 females and the latter 44 males and 106 females, giving a total of 190 pipemaking employees over twenty all told.

The appearance of 79% of this total in "Clifton" is at first sight astonishing; however, "Clifton" is presumably the Clifton Union set up under the Poor Law Reform Act of 1834 to include northern suburban Bristol and which included St Jude's (see p.1075 below). Assuming this to be the case, the division used here turns out to be very useful, for in recording 40 pipemakers over twenty in "Bristol" it is presumably recording those who were working within the central area of the city, and as the 1861 trade directory lists four pipemaking businesses in this general area an idea of the average number of employees per firm can be estimated with more accuracy than could be obtained simply by dividing the gross number of makers recorded by the gross number of firms. As the 1861 abstracts do not repeat the unsuccessful attempt of ten years earlier to have masters indicate the number of their employees, this fortuitous division of the city enables these figures to be calculated with some expectation of accuracy despite the lack of direct evidence.

The 1861 abstracts, like those of 1851, give a breakdown of pipemaking employees by age groups. Again, Bristol is included with Gloucestershire. The groups are slightly different from those in the preceding abstracts, the five-year groupings being used only up to age 24, and ten-year groupings being used thereafter; however, much worse, because the only Bristol figures are for makers twenty and over while the Gloucestershire figures cover the whole age range, there is instead of a negligible difference between the Bristol and Gloucestershire totals such as the nine more Gloucestershire makers noted in 1851, a sizeable difference of 51, for the Gloucestershire total of 241 makers now includes two unknowns: non-Bristol makers of all ages and Bristol makers under twenty. Faute de mieux, the Gloucestershire breakdown of ages for 1861 has to be used as evidence to judge the statistics for the Bristol pipemaking industry, but obviously, while the 1851 and 1861 figures could be compared directly if one wished to consider the Gloucestershire industry they cannot be so well compared when trying to estimate trends in the Bristol industry, for there are only indirect means of estimating how many of the 28 Gloucestershire pipemakers under 20 worked in Bristol. Obviously, however, the vast majority of them must have been Bristolian: elsewhere, the 1861 abstracts indicate there were at least 16 Gloucestershire pipemakers twenty and over outside Bristol - 13 in Gloucester and one each in Stroud, Tewkesbury, and Thornbury - which gives an upper limit of 228 to the total number of Bristol makers of all ages. The breakdown by ages is as follows:

Age	MALES	FEMALES	
10-14 yrs	-	4	
15-19 yrs	4	20	
20-24 yrs	8	19	
*25-34 yrs	18	45	
*35-44 yrs	23	37	
*45-54 yrs	10	15	
*55-64 yrs	9	7	
*65-74 yrs	7	13	
*75-84 yrs	2	-	
TOTALS	81	160	= 241

*10-yr periods

In 1871, the abstracts present their evidence in much the same way as in those for 1861. In Bristol a total of 105 pipemakers aged twenty or over are recorded, 35 of them male and 70 female.

Once again a breakdown by age groups is available for Gloucestershire pipemakers (the same groups as ten years previously except that all employees over 75 are lumped together), and once again this includes employees under twenty years of age. A total of 133 pipemakers of all ages is recorded for Gloucestershire, 28 more than the Bristol total; elsewhere the abstracts note 5 makers aged twenty or over in Gloucester, but this still leaves 23 makers under twenty unaccounted for, though undoubtedly the vast majority must once again have been in Bristol. The breakdown is as follows:

Age	MALES	FEMALES
10-14 yrs	-	3
15-19 yrs	5	9
20-24 yrs	4	5
*25-34 yrs	2	16
*35-44 yrs	8	28
*45-54 yrs	12	16
*55-64 yrs	10	7
*65-74 yrs	2	3
**75 and over	2	1
TOTALS	45	88 = 133

*10-yr period
**more than 10-yr period

In the 1881 abstracts pipemakers, now in the category "Persons working and dealing in Tobacco and Pipes", are lumped together with "Snuff Box, &c., Maker[s]", an indication of the decline in the trade; and this adds a degree of uncertainty as to the number of actual pipemakers working. However, the totals given for Bristol - 89 all told, 16 male and 73 female - clearly show that however many "Snuff Box, &c., Maker[s]" were bolstering this total it was far too little to offset a very large decrease in the number of pipemakers working compared to that for ten years earlier (the 1881 abstracts do not appear to say what age group these numbers are for, but presumably it was as in previous abstracts those aged twenty and over). There is no breakdown by age group available in the 1881 and subsequent abstracts.

In the 1891 abstracts, the same classification is in effect, and by this date Bristol recorded only 47 "Tobacco Pipe, Snuff Box, &c., Maker[s]", 12 of them male and 35 female.

In the 1911 abstracts, the last examined (the 1901 and 1921 abstracts, at least those volumes held by the Department of Statistics in Ottawa, do not appear to have the relevant entries and the Bristol pipe industry closed in Decembr 1921), pipemaking, still associated with snuff-box makers and "etc", has declined to the category of "Other, General, and Unidentified Workers and Dealers", sub-category "Sundry Specified Industries"; and only figures for Gloucestershire, this time for employees aged ten years and over, are available. A total of 43 are recorded, 17 males and 26 females (8 unmarried, 12 married, and 6 widowed).

As stated earlier, the census data does give useful information despite the varying ways in which it is presented: in particular, it is useful because it covers the period when the Bristol pipe-industry, on other evidence, reached its zenith in the 1850s and then finally and dramatically collapsed in the 1860s.

Earlier (pp543-4), the variant evidence of the Examiner's correspondent's recording in 1850 that the pipe-industry in St Jude's had suffered a serious relapse in the 1840s due to the loss of the North American trade and the trade directory evidence which suggested it was not until the 1860s that the industry collapsed was discussed: so far as the census figures are concerned, their evidence agrees with the trade directory evidence, for taking the figures for employees of both sexes aged 20 and over (the only figures which are available for all the abstracts) the trend is as follows:

year	number of pipemakers (census abstracts)	number of pipemaking businesses (trade-directory entries)
1841	172	19
1851	194*	23
1861	190	18
1871	105	7
1881	89**	5
1891	47**	4

*includes "others" (see above)
**includes "Snuff-Box, &c., Maker[s]" (see above)

It is clear from these figures that the major contraction of the industry did indeed occur between 1861 and 1871, when the number of employees was nearly halved and the number of firms was reduced by rather more than half. Between 1841 and 1851, on the contrary, the number of employees actually increased, and whatever was meant in the latter census by adding "others" to the pipemaking total it is unlikely, as indicated earlier, that this added an appreciable number; and between 1851 and 1861 the number of employees remained virtually the same. As indicated earlier (pp543-4), the loss by Bristol makers of their North American market does seem to coincide with the rise of Glasgow to dominate the North American clay pipe market, so if one assumes the loss noted by the Examiner's reporter in 1850 as being the result of this change and presumably a permanent loss one must postulate that the Bristol industry was able to expand its home market sufficiently to gain enough sales to stabilize and even increase staff until ca.1860; and as noted, there is contemporary evidence from the late 1830s into the mid-1850s that clay pipe smoking had revived in Britain, at least partially at the expense of cigars.

The second major reduction in employees, that noted between 1881 and 1891, is proportionately speaking an even greater drop than that between 1861 and 1871, though again the precise figures are obscured because pipemakers have been grouped with other artisans - here snuff-box makers and "etc" - but this time there is no corresponding reduction in the number of firms surviving and one must assume the sharp decline reflects a major attrition in number of employees while the businesses themselves hung on. The final figures, those for 1911, are for Gloucestershire, but virtually all, if indeed at this late date not every one of them, must have been in Bristol; the total, 37 - once again including snuff-box makers and "etc" - suggests numbers of employees had levelled out somewhat. Finally, as noted above, in the two years prior to George's closing in December 1921, the firm had been employing 3 pipemakers; presumably this figure excluded the George family members and the firm may have had one or two odd-job men in addition such as a furnaceman and some packers, but almost certainly the total involved in those last days would not have reached double figures all told.

Although the only common figures for numbers of employees throughout the period covered by the census abstracts are those for employees aged 20 and over, and even these are imprecise because of the "others" added in 1851 and the "Snuff Box, &c., Maker[s]" added in 1881 and 1891, some reasonable estimates can be made for the entire pipemaking population of the period. The 1841 figure, as already noted, is known to be 226; and that for 1851, 260 minus an unknown, but almost certainly negligible, number of "others" - say a total of ca.258. In 1861, as noted when discussing the abstracts for that year, the total number of Bristol makers must lie between the 190 recorded there as aged twenty and over and 228, the latter a figure deduced by taking the Gloucestershire total of 241 pipemakers of all ages and subtracting from it the 13 makers twenty and over known from other evidence in the abstracts to have been working in various specific locations in the county but outside Bristol. Certainly, the vast majority of Gloucestershire makers aged twenty and over must have been in Bristol, so the Bristol total figure must be much nearer 228 than 190 - a figure of ca.220 would appear to be reasonable. This indicates there must have been a sharp reduction in the number of employees aged under 20, for as noted above there were almost identical numbers of employees aged 20 and over in 1851 and 1861; as will be noted later, this bears out other evidence dealing with the final collapse of the industry.

For 1871, as already indicated when discussing the evidence above, the total figure for Bristol makers must lie between the 105 recorded aged twenty and over and 128, a figure deduced in the same manner as above, namely taking the Gloucestershire total for makers of all ages, 133, and subtracting the 5 known to have been twenty and over and working in Gloucester. Again, the vast majority of Gloucestershire employees under twenty must have been in Bristol, and a figure for the total number of ca.123 for Bristol employees of all ages would appear reasonable.

The figures for 1881 and 1891 are rather more difficult to estimate, for there is no means of knowing how many "Snuff-Box, &c., Maker[s]" were included in the available figures, which again were for makers aged twenty and over. These would obviously have to be subtracted before adding any numbers for pipemakers under twenty; however, by this time, with the pipemaking industry virtually dead, there can have been very few young people, if indeed perhaps any, entering the trade, so that it is highly unlikely that any addition of young people would have cancelled out the non-pipemakers included in the figures from the abstracts. The number of snuff-box and whatever other makers were included in the total cannot really be estimated, so the numbers of pipemakers can only be roughly guessed at, but they would probably be appreciably lower than the 89 and 47 given respectively in the 1881 and 1891 abstracts for the totals including non-pipemakers. Rough estimates of ca.70 and ca.35 respectively for the number of pipemakers are therefore suggested here. In summary, therefore, the total numbers of all ages employed in the Bristol pipemaking trade over the period covered by the census abstracts can be given as follows:

1841	1851	1861	1871	1881	1891
226	258*	220*	123*	70**	35**

*approximate figures
**rough estimates only

As noted above, the 1851 abstracts give a breakdown, albeit very incomplete, of numbers of employees for each Master. Only five master pipemakers in Gloucestershire supplied this information, but even so, useful deductions can be made from this. In 1841, 226 men, women, and children were recorded in the trade in Bristol and the trade directory for that year noted 19 pipemaking businesses in the city. In 1851 ca.260 men, women, and children are recorded in the industry and 23 businesses were noted. Both these sets of figurers indicate a consistent average of ca.11 employees (plus the Master) per business, a figure which holds remarkably steady for 1861 and even 1871, by which time the industry had collapsed. As noted above, however (p.522), many Bristol pipemaking establishments must have been no more than small family concerns, probably simply the man with his wife and three or four assistants, either members of his family or journeymen - a size which would agree with that indicated by the number of employees recorded by four of the five masters who gave this information in the 1851 census - so figures of up to ca.30 employees for the largest firms such as George's and Ring's would not be unreasonable.

Whether individuals such as the St Jude's woman noted in Section IX below and 5: II above who made pipes in her own home and sold them to the local firms for firing - in effect working as a contractor - would have been considered by these firms as among their employees, is, however, doubtful; nevertheless, at least one firm at the time of the 1851 census did employ over 30 people, one master being listed with between 30 and 34 employees. Although Bristol masters are not separated in the Gloucestershire entries for this evidence, it is certain that the master with the 30-34 employees worked in Bristol, for the same census notes only nine pipemakers in Gloucestershire outside Bristol. One can conclude, therefore, that at least one Bristol firm, presumably either George's or Ring's, did indeed employ ca.30 workers in the mid-C19 but that this was unusually large for Bristol pipemaking establishments of the time; the four Gloucestershire makers with 3 and 5 employees are almost certainly much more representative of the usual-sized, essentially home industry, pipemaking business of the time.

As noted above, for the purposes of the occupations returns in 1861, Bristol was divided into two areas labelled "Bristol" and "Clifton". The latter, as indicated above, is presumably the Clifton Union set up under the Poor Law Reform Act of 1834 to include northern suburban Bristol and which included St Jude's. This division turns out to be very useful, for by recording 40 pipemakers aged twenty and over in "Bristol" - 13 men and 27 women - it is presumably recording those who worked within the central area, and as the 1861 trade directory lists four pipemaking businesses in this general area - G.E. Hunt at Phippen St, Temple Meads; William Mills at Temple St; R. Offer at East St, Bedminster; and J. Ring and Son at Temple Back - one may suppose these four businesses employed among them the 40 recorded employees. This gives an average of 10 employees per business, which agrees with the deductions from the 1851 figures discussed above and in the preceding section; Ring's were undoubtedly the largest of these businesses and possibly employed between 20 and 30 of the total, which would leave the others with ca.3-5 employees each, a figure which is again in agreement with the 1851 deductions.

The remaining pipemakers listed in the 1861 census - the 150 listed under "Clifton" - 44 men and 106 women - obviously enough must belong to the 14 other businesses listed in the 1861 directory, and all of these businesses with the exception of the firm of J. and J. White which was farther up the Frome at Baptist Mills, were in St Judes's; once again the average number of makers - ca.10-11 - agrees with previous evidence. Indeed, there is a suggestion here that in the bastion of the industry on the very eve of its final collapse, the average business was somewhat larger than those noted above in the central area of Bristol, for with the exception of George's, who were probably employing ca.30 workers, and White's who were primarily a pottery firm (pp550-3 above) but probably did employ more pipemakers than the average St Jude's family business, there is no evidence that any of these 14 businesses were larger than any other among them, so that discounting the presumed two largest employers, George's and White's, for the moment and supposing these two employed between them ca.45 workers, the remaining 12 businesses would still have averaged ca.8-9 workers each, double the figure suggested for the typical businesses in the central area of the city. All these calculations are, of course, somewhat speculative, but overall they do suggest that the typical Bristol pipemaking business in the middle of the C19 barely reached double figures in adult employees (i.e. those aged 20 and over), and that only two or three of the businesses were in any sense of the term formal firms.

Turning to the information on the ages of pipemaking employees, which is available for the years 1851, 1861, and 1871, some interesting points emerge. As noted above, these figures are in fact available only for Gloucestershire, but as the vast majority of Gloucestershire pipemakers - probably always 90% or more over the period under discussion - worked in Bristol, there is every reason to accept the county figures as representative of those for Bristol; and in the following paragraphs when the trends of the Bristol industry are discussed it is on this presumption.

Examining the 1851 figures first, it appears that at what is, both in terms of absolute numbers and numbers of businesses recorded in the trade directories (p.542 above), the zenith of the trade in the C19 and also almost the eve of its final collapse from 1860, the Bristol pipe industry is predominantly one of younger employees, 84 of the male employees - 77% - being between 10 and 39 years old and almost as large a proportion of the female employees - 120, or 75% - being in the same bracket. In the case of the male employees there is no one predominating age group, only a very consistent number in each five-year span within the range 10-39 years, but with the female employees there is a definite increase within the 10-39 year range to the 20-24 year period and an equally-definite decrease after that age; in both cases, however, there is a pronounced break between the numbers under 39 and those over.

It must be remembered, of course, that in a slum area such as St Jude's life expectancy would have been very much lower than in better areas. As noted in Section VIII below, mortality figures for St Jude's are not readily available, but Bristol as a whole had an average mortality rate of ca.3% in the 1840s which was third only to Liverpool and Manchester and the average ages at death for the labouring classes in Liverpool, Bethnal Green, and Manchester in 1842 were respectively 15, 16, and 17 years, well under half the averages for gentry there. The apparent youthfulness of those employed in the Bristol pipe industry at this time is thus in some degree misleading; but the impression still is that the trade in 1851 was not yet one of older employees serving out their declining years in the only trade they knew: in terms of the ages of its employees the industry still appears to have been relatively soundly based.

There are two peaks of older employees, both among the female labour: the earlier 50s age-group and the earlier 60s. It is difficult to know what, if anything, this indicates - possibly it represents widows forced to pick up employment following their husband's deaths.

By 1861, however, the breakdown of ages for pipemakers shows a very interesting change. Here, on the very eve of the dramatic and final collapse of the Bristol industry, the ages of the employees are seen to be definitely older than those indicated by the figures for ten years previously: in other words, the industry now has begun to show signs of attenuated recruiting of apprentices and to reflect older employees serving out their years; and this in turn agrees with the evidence noted above that the number of employees aged under 20 had dropped sharply between 1851 and 1861. As will be seen, this trend is confirmed by the 1871 figures.

The expanding of the five-year grouping in the 1851 abstracts to ten-year grouping, after the age of 24, in 1861 and 1871 is unfortunate, as it means that to obtain a comparable set of figures the under-24 five-year age groupings have to be joined to make ten-year groupings, with consequent lessening of sensitivity of the data, but the evidence is still accurate enough to show a trend towards older employees. In the following table the 1851, 1861, and 1871 figures, reduced to the same age groupings, are given, showing the progressively-increasing trend towards older workers.

Age	MALES			FEMALES		
	1851	1861	1871	1851	1861	1871
5-14 yrs	13	-	-	11	4	3
15-24 yrs	28	12	9	55	39	14
25-34 yrs	28	18	2	40	45	16
35-44 yrs	23	23	8	19	37	28
45-54 yrs	9	10	12	13	15	16
55-64 yrs	7	9	10	12	7	7
65-74 yrs	1	7	2	7	13	3
75 and over	-	2	2	3	-	1
TOTALS	109	81	45	160	160	88

These figures show that whereas in 1851 the age-groups with the highest number of male pipemaking employees were equally the 15-24 and 25-34 year-olds, each with 26% of the total number of employees, the age-group with the largest number of employees in 1861 was the 35-44 year-olds with 28% of the total and the age-group with the largest number in 1871 was the 45-54 year-olds with 17% of the total. Put another way, while 84% of male employees in 1851 were 44 years old or under, by 1861 only 65% were 44 years old or under, and by 1871 only 42% were. The one slight peculiarity among the figures seems to be the unusually high proportion of 15-24 year-olds in 1871 - 9, or 20%, evenly distributed between 5 aged between fifteen and nineteen and 4 between twenty and twenty-four - compared to the small number of employees aged between 25 and 34: this does suggest that either there had been a gap in recruiting apprentices but that recruiting had started again or else that with the collapse of the industry in the 1860s many of the younger men in their twenties and thirties had left to seek better employment elsewhere - the latter is perhaps more likely.

With women pipemakers the figures show essentially the same trend. In 1851 the age-group with the highest number of women pipemakers was the 15-24 year olds, with 34%; by 1861 it was the 25-34 year-olds, with 28%; and by 1871 it was the 34-44 year-olds, with 32%. The one minor pecularity among these figures is the unusually high number - 13, or 8% - in the 65-74 age-group for 1861, compared to half that number for the preceding ten-year group: there seems no obvious explanation for this occurrence, unless, as possibly with the peaks noted above for the earlier 50s and earlier 60s age-groups in the 1851 abstracts, it represents widows forced into employment following their husbands' deaths.

One particularly interesting aspect of the decline of the Bristol industry is revealed in a recent examination of the C19 Bath industry (Brown and Brown 1974). Out of 24 pipemakers appearing in trade directories or poll books, 6 of the 15 whose birthplace is known were born in Bristol. The first of these is first noted in 1841; all the others first appear between 1851 and 1871. Only 5 of the 24 makers are Bath natives, and three of these do not appear until 1878 and later (the widow and two sons of Joseph Sants, fl 1837-71, who was a native of Gloucester), which further emphasizes the outside, specifically Bristol, influence on the C19 Bath industry.

Those listed in directories or recorded in poll books were probably business owners - Joseph Sants, who was also in the pottery business, was recorded in the 1871 census as employing eight men, seven women, and four boys, presumably covering both businesses - but the Bristol influence on the Bath industry of this period is even more pronounced when those pipemakers known only from the census returns (1841-71), who were all probably journeymen, are studied. Here, out of 27 individuals listed (a number with family members also listed as pipemakers or pipetrimmers) 10 were natives of Bristol and one of the 5 whose birthplace is given only as "not Somerset" may also have been a Bristolian as the family name, Allen, is that of two C19 Bristol pipemakers who are almost certainly related to each other (there is a second Allen pipemaker listed in Bath, this time with Bristol as his place of birth). By contrast to the above figures, only three of those listed gave their place of birth as Bath (two others with the same family name, Pavey, gave their place of birth as Nantgarw, where as noted below (pp634, 640) the Bristol Pardoe family manufactured pottery and pipes, while two other Paveys gave Bristol as their birthplace and a fifth gave Tredegar, where pipes were certainly being made last century (see pp401-2), as her place of birth.

Of the various Bristol-born pipemakers listed either as probably business owners or probably journeymen a number have names of known Bristol pipemaking families of the C19: Allen, George, James, Moul, and Norman. However, none of those actually listed can be identified with individuals listed (i.e. as business owners) in Bristol, so it would seem likely that the individuals in Bath were children or younger brothers and sisters of those recorded in Bristol. The relationship among the five Paveys noted in the 1861 and 1871 censuses and referred to above - two men and two women noted in 1871 and a married man noted in 1861 - is unknown, but it is likely they were fairly closely related, and their variety of birthplaces suggest a journeyman family moving around the West Country and South Wales from one business to another, as is certainly known to have happened elsewhere in the later C19 and into the C20 (Hallgarth 1969: 3rd page; Triggs 1970: 117; cf pp395-6 above).

There is no doubt, therefore, that there was a considerable influx of Bristol-born pipemakers to Bath, the majority of them probably working there as journeymen and arriving in the 1850s and 1860s, just the period noted above as that when the Bristol industry reached its zenith and rapidly collapsed. As with the move of the Montreal pipemakers to Detroit as the Montreal industry started to decline (p.361 above), however, any relief found was only temporary: only three Bath makers, all members of the Sants family, were still in business by the 1890s, and only one of these businesses - that of Walter Sants, a son of the Joseph noted above - lasted into the C20, being last recorded at 27-29 Milk St in 1919.

Trade directory entries enable successive occupants of pipemaking premises to be traced; they also allow one to trace the movements of an individual pipemaker from one such premises to another. In this way some measure of the stability or otherwise of the industry in the particular centre being studied may be obtained, for as noted when discussing the Glasgow and Montreal pipemaking industries (4: IV and V) a high percentage of makers appearing for only a few years or a large number of address-changes for a business (as in Montreal) suggest an unstable industry.

By these standards, the Bristol industry appears relatively stable: something like Glasgow, perhaps, and certainly nothing like Montreal. The comparison with the Glasgow industry cannot be pushed too far, however, for as noted earlier a fair number of Bristol makers combined their work with other trades and this does not appear to have been the case with Glasgow makers to any marked degree, at least on the evidence available so far. Further, the Glasgow industry must have been far larger in its prime than ever the Bristol industry was. Unfortunately, definite figures are lacking, but in terms of staff McDougall's had 150 workers in 1914 when there were only 6 Glasgow firms compared to the 16 or 17 there had been at the height of the industry there, and probably ca.250-300 workers in the second half of last century when the Glasgow industry was at its height (McDougall figures in Walker and Walker 1969: 145); whereas George's, the leading Bristol firm of the time, are said to have had ca.30 employees in the early 1870s (Anonymous 1921a), after the final crash of the Bristol industry in the 1860s and in a position probably roughly comparable with that of McDougall's in 1914. As noted in Section V above, a manuscript note of the last Thomas George says the family firm had 32 workers in 1900.

Even at the height of the Bristol industry in the mid-C19 it is difficult to believe George's would have had more than ca.30 hands, and it seems unlikely that any other Bristol firm would have had any considerable number of makers unless possibly Ring's (who were not in St Jude's) when they were exporting to North America probably in the earlier C19; indeed, as noted above, the anonymous correspondent to the Examiner in 1850 (letter of 24 August) indicated that probably only between 100 and 200 people in St Jude's had partial employment in pipemaking about that time, even when sales were high, which they were not when he was writing. As there were ca.20 businesses listed in directories specifically in St Jude's at this period there can have been few big staffs even when trade was at its best. This impression, as discussed briefly in the preceding section, is reinforced by the census evidence. In 1841, when detailed breakdowns by employment first appear in the census abstracts, 226 men, women, and children of all ages were employed in the trade; in 1851 the figure was ca. 258; in 1861, ca.220; and in 1871, ca.123. Divided by the number of businesses recorded in the trade directories for these years - 19, 23, 18, and 7 respectively - these figures consistently indicate an average of ca.12 employees per business. Only one of the census abstracts, that for 1851, gives breakdowns of numbers of employees per Master, and unfortunately the returns are very incomplete, as the abstract-compilers admit; but for Gloucestershire (there are no figures specifically for Bristol) one master, who for reasons indicated below must have worked in Bristol, indicated he had between 30 and 34 employees, while another indicated he had 5 and three others indicated 3 each. As indicated below, the business with between 30 and 34 employees was probably either George's or Ring's; the others, which were probably family businesses - the proprietor, his wife, one or two of his children, and a journeyman - undoubtedly represent the size of the more typical Bristol pipemaking establishments of the period.

Mr George, in the manuscript note referred to above, said that John Carey, who worked "where the Old Market Street Wesleyan Chapel was Built on this site in the Year 1815...had between 80 & 90 People working for him,..." but this is an impossibly high number, particularly for that time, when the Bristol pipe industry was only just recovering from the catastrophic slump in the last quarter of the C18. What is interesting is that John Carey was indeed working at various times at Old Market St - 1794-95 and 1803 according to Matthews's directories - and apparently ceased working in 1815 or 1816 (though he was in Lamb St by this time). Mr George was born in 1872; in another note he again talks of the Chapel being built in 1815 on the site of Carey's works and says "My Fathers Great Grandfather ['great' has been inserted subsequently], helped Mr John Carey, when pressed for time to catch the Ships going to the West coast of Africa" (this note is dated September 1952). His father's grandfather was James George (B ca.1787, D 1873) recorded as a pipemaker 1822-58; his father's great-grandfather was the first Thomas George (B ca.1765-70, F 1812, D 1835) apparently initially working with a relative of his deceased father-in-law John Okely (F 1768, D ca.1799). Obviously there is a family tradition here, but it appears to have been distorted; 80 or 90 employees seems impossible even for the biggest firm at the height of the Bristol industry in the C19, and there are sound historical reasons for maintaining this number could never have been employed by John Carey. Certainly there could never have been a business this size in the C18. However, as is noted below, John Carey may well have been the leading Bristol pipemaker of his time, for there is evidence to suggest he had a flourishing business.

In Glasgow, however, White's - the other major producer there and McDougall's great rival - must have employed at least as many workers as did McDougall's in the second half of the last century; and Davidson's, the other major exporter of this period - and possibly A. Coghill's, if that firm was still exporting this late - cannot have been far behind in size. Murray's too, Davidson's predecessor, must have had a large staff. Thus several Glasgow firms must have been employing some 200 workers or more at the height of their prosperity, whereas no Bristol firm can ever have had as high as 50 employees. Indeed, in view of Glasgow's dominating the British export trade in pipes by the mid-C19 few firms anywhere are likely to have approached Glasgow's in size.

Unfortunately, even 100 years after Sketchley had published the first Bristol directory in 1775 and had numbered each property, earnestly desiring Bristolians to adopt this useful system[36] (it is said - Latimer 1893: 420 - that for 1s he attached numbers to doors), street numbers are still omitted from some entries. In the first half of the C19 in particular, such numbers are omitted from the great majority of entries, at least those for pipemakers; and because almost all pipemakers are confined to a handful of streets it is frequently impossible to know definitely when a property is changing hands. Add to this shortcomings in Matthews's entries - confusion between Gt Ann and Gt George Sts, for example - and renumberings of the streets in the St Jude's area at various dates, and the task is made even more difficult.

An example of this is the occupancy of the Lamb St property latterly number 14. This property can be convincingly traced backwards beyond 1848 - when its number first appears - because a whole series of pipemakers with the same surname as the maker listed at number 14 appear on Lamb St back to 1815, but this is more fortuitous than with most properties.[37] This property is of interest because it is the longest continuously-occupied pipemaking premises known in the city, being certainly occupied for 90 years. The ownerships, working backwards, are as follows:

1903-04: Holloway and Co
1901-02: Blackmore, Holloway and Co
1900: R.W. Blackmore
1892-99: Thomas John Corcoran
1891: not listed (Corcoran still at 22 New St)
1884-90: W. Pring
1882-83: Sarah Williams
1878-81: J. Sarah Williams [sic]
1877: Mrs J. Williams
1839-76: John Williams
1835-38: not listed
1829-34: Ann Williams
1825-28: John Williams
1824: Ann Williams
1822-23: John Williams
1815-21: Thomas Williams

The 1815 entry for Thomas Williams occurs in the "late entries" section, which may indicate Williams had only just set up business. In that year, and for the preceding years back to 1811, John Carey is listed as a pipemaker in Lamb St, but with no number given. Frustratingly, the copy of Matthews's directory for 1816 has four pages missing - apparently a printer's error - including the one where Carey's name would be; Carey does not appear in the 1817 or subsequent directories. Between 1810 and 1812 Nicholas Kennicott appears on Lamb St, and he certainly left Bristol at some time subsequently, for he is in Swansea by 1830. Again, however, no number is given, so whether Thomas Williams took over John Carey's premises remains unknown - it may even be that Carey took over Kennicott's premises if one assumes there was an error in the directory, an easy thing to assume with these Bristol directories. (In fact, the point could be resolved by examining the property deeds: the writer briefly examined those held by the Archives Office in Bristol for the St Jude's area, which latter has now been largely cleared and partly developed with multi-storey flats, and it appears there is a comprehensive collection. A study of the material was, however, not possible in the time available.)

The succession of occupants at 14 Lamb St seems typical of pipemaking premises elsewhere in the C19, for example in East London as noted in 4: VI. The Lamb St listings also have a fair share of the confusion and uncertainty typical of the evidence for pipemakers in Bristol in the C19 and attributable in part to confused directory entries, though the main outlines seem clear enough. From 1815 to 1883 the property is occupied by members of the Williams pipemaking family. Numerous Williamses pipemakers appear in Bristol, particularly in the C19, but their relationships are obscure (see Appendix IX). Thomas Williams II the founder of the Lamb St dynasty is presumably neither the Thomas Williams I fl 1791-92 in Redcross St nor the Thomas Williams III F 1830 having married the daughter of a freeman coalminer, though the latter is surely a relative as he votes from Lamb St in 1830, 1832, and 1835. The alternating John Williams and Ann Williams entries 1822-34 are probably directory compilers' shortcomings: presumably John (John Williams III) was a son of Thomas II, Ann was his wife who took over 1824, and the John Williams entries 1825-28 are errors. John Williams IV fl 1839-76 is presumably a third generation - the gap in the record 1835-38 may be no more than another directory error. In any event, this John Williams worked through the rise of the Bristol industry in the 1830s and 1840s, through its greatest period in the years on either side of 1850, and survived the collapse in the 1860s, presumably dying in 1876. His widow Sarah ran the family business for a further seven years.

Following her, the premises passes rapidly through a number of pipemakers, makers like those noted in East London desperate to find a living as the industry died and convinced they could make a go of it if they could obtain premises. The final occupants, Holloway and Co, also dealt in glass and china from their premises nearby at 45 West St and probably regarded pipemaking as a speculative (and unsuccessful) venture on the side.

Another pipemaking property which can be traced back through a number of occupants, though not nearly as far as the Lamb St property can be traced, is the premises latterly known as 22 New St. Working backwards, the occupants are as follows:

1890-91:	Thomas John Corcoran

1888-89: not listed
1886-87: Thomas Williams
1884-85: not listed
1882-83: Mrs George
1879-81: Thomas George (in addition to his premises at 36 Gt George St)
1886-78: Ann Lewis

In 1865 Ann Lewis is listed at 10 New St, and as there is some evidence to suggest that Wade St, Gt George St, and New St were renumbered about this time it seems likely 10 New St is the same as 22 New St. Assuming this, occupancy can be traced back farther:

1864-65: Ann Lewis
1854-63: George Lewis

Matthews's directories do not list George Lewis for the period 1851-53, but they list him (or presumably him) for the years 1847-50 at New St - no number. *Slater's (late Pigot's) Directory* for 1852-53 lists Lewis at New St (no number), but Scammell's *Gloucester, Bristol and South Wales Directory* for 1853 lists George Lewis at 7 Gt George St. Whether, therefore, Lewis was in reality at 10 New St for the whole period 1847-53 but simply omitted from Matthews's directories for the last three years is not clear. If he had been omitted from Matthews's directories by accident or inefficiency for the years 1851-53 then he is likely to have been at the same premises in New St for 1847-50 as in 1854 and onwards; if, however, he was indeed on Gt George St in 1853 there would be less reason to suppose he had been at *10* New St for the period 1847-50. A J.G. Reynolds disappears from New St in 1853 as Lewis re-appears in 1854, but Reynolds first appears in 1849 (on New St), in which year Lewis is also listed there. Other New St pipemakers could be at least approximately fitted into a sequence extending back from Lewis's first appearance in 1847 - Jonathan Moul 1846-47, James Tillett 1837 and 1840-45 (and 1847 after a one-year stay elsewhere), Edward Rich 1838-39 - but when the street number is not given, and when no listings of street occupants giving their relative positions are available, the task of identifying properties becomes impossible without resorting to a study of the property deeds.

Although this property has a much shorter definite association with pipemakers than the Lamb St property discussed above, it too has a final flurry of pipemaker-occupants as the industry dies. The Lewises, like the Williams family at Lamb St, occupy the premises for a consideable period - at least 24 years. When Ann Lewis retires or dies in 1878 the industry is largely finished, and as with the Lamb St premises after Sarah Williams died in 1883, several pipemakers take it over in the succeeding 13 years no doubt as a speculative venture. As the anonymous Bristol observer noted in the *Examiner* in 1850 (see above), as soon as a family could get enough money to set up a kiln and buy a mould and a little clay they would quite commonly set up in business for themselves. As was noted in 4: VI, citing the example of Wolverhampton nailmaking in 1819, the last resource of the starving journeyman was to set up as a master (quoted in E.P. Thompson 1963: 287, 1968 ed); and this must undoubtedly have applied to pipemakers in a similarly dying industry. Like the Birmingham gunsmith described in 1962, the Birmingham jeweller described in 1866, the blacksmith from the same Midlands area described in the later C17 all noted earlier (pp385-6 above), or the Wolverhampton nailmaker instanced above, a pipemaker could set up business with relative ease, for apart from a garret and a handful of tools and the clay the only fixture he needed was a kiln, and from the evidence of Flanagan of Leicester and elsewhere (2: VII) a maker could get by with a primitive kiln and no saggars (cf discussion on East London pipemakers, 4: VI). Pipemakers appear to have been entirely typical of the small independent craftsman.

The last owner, Thomas John Corcoran, is perhaps worth looking at in more detail. Unlike the Glasgow and Edinburgh industries, for example, where pipemaking slowly and quietly slips away, the last 25 years of the C19 in Bristol sees a number of short-lived enterprises setting up and attempting to succeed where others had failed. This, as with the rapid turnover of premises such as those at 14 Lamb St and 22 New St, reflects out-of-work pipemakers searching for an opportunity to re-establish their living.

Corcoran, however, is probably not one of these. He appears as landlord of the "Swan" in New St in 1887-90, and his decision to take over the possibly vacant premises of 22 New St (it is not listed in 1888 or 1889) must have been made with a good knowledge of local conditions - few people know the local economy as well as an innkeeper (cf p.721 below). Perhaps for this reason he is the only late C19 Bristol pipemaker who seems to have had some success. In 1892 he moved to 14 Lamb St and ran a detailed advertisement in Wright's directory for that year, listing Irish, straws, and meerschaum patterns at 1s6d a gross, assorted cutties at 1s0d a gross, and offering to stamp the customer's name and address on best-quality pipes at 2d a gross provided four or more gross were ordered - sample provided free. Such enterprise does not appear from other pipemakers, and Corcoran continues in business until 1899.[38] After a four-year gap in the Wright directory entries he appears at 136 York Rd, Temple Meads, for the single year 1904. What happens in the interval is not clear: in 1903 and 1904 the firm of "Corcoran and Co (A.J. Veale)" appears in Wright's directories at Tower St, Temple, to be succeeded there by the "Bristol Tobacco Pipes Manufacturers" until 1911, the second-last Bristol pipemaking concern; but the *Bristol and District Trades' Directories* for 1899, 1900, 1901, and 1902-03, but not that for 1903-04, continue to list Corcoran at 14 Lamb St. The *New Bristol Directory* for 1904 lists "Corcoran and Co" at Tower St, Temple, probably the "Corcoran and Co (A.J. Veale)" entry noted above. Possibly Veale bought out Corcoran's business and with it the firm's name, and then Corcoran himself started up again in York Rd; according to a niece contacted by this writer, Corcoran emigrated to North America.

An example of a business which did move premises a number of times but still apparently managed to thrive, is that of the three Careys - Israel II, John, and Israel III (or possibly four, if in fact there were two John Careys involved - this problem is discussed in Appendix IX). The Careys' business is listed as follows:

1775: Israel Carey, 38 Lewin's Mead
1783: Israel Carey and Son, Castle Green[39]
1785-87: Israel Carey, Castle Green

1791: John Carey, Castle St
1792: John Carey, Castle St
1794-95: John Carey, Old Market St
1797-1801: John Carey, Redcross St
1803: John Carey, Old Market St
1805: John Carey, Redcross St
1806-08: John Carey, Redcross St and Coal Yard in Bread St
1809-10: John Carey, Bread St
1811-15: John Carey, Lamb St
1816: relevant pages in directory missing
1817 and onwards: no mention

1811: Israel Carey, Bread St
1812: Israel Carey, Ann [sic] St
1813-14: Israel Carey, Pennywell Lane
1815: Israel Carey, Gt George St - Counter, 4 River St, Ropewalk
1816: relevant pages in directory missing
1817: Israel Carey, Gt George St - Counter, 4 River St, Ropewalk
1818: Israel Carey, Sugar House, Gt George St - Counter, 4 River St, Ropewalk
1819: Israel Carey, Sugar House, Gt George's St
1820-21: Isreal Carey, Gt George St (Counting House, Sugar House)
1822: Israel Carey, Counting House, Sugar House, Gt George St
1823-26: Israel Carey, New St
1827-29: Israel Carey, Stoke's Croft
1830 and onwards: no mention

These entries contain the usual quota of obscurities, particularly with regard to Israel Carey III. River St runs along the SE bank of the Frome and approximately parallel to Gt George St, and Carey may have had a property which ran from one street to the other; as noted above, the last Thomas George recalled an E. Carey making pipes sometime in the latter part of last century whose address - Blue Factory, Gt George St - when compared to the 10.56 ft to the mile 1883 OS plan of the area suggests he too may have owned property running between these two streets. Ropewalk was the name given sometime before 1883 to what is now the end of Wellington St at its junction with St Matthias Park, on the opposite side of the Frome from River St; the area had been a ropewalk in the C18 and was still open ground on Ashmead's 1828 plan. How the "Counter", "Counting House", and "Sugar House" fitted into this, and what precisely they were and what connection Carey had with them, is uncertain (see Section VIII below). However, Carey is noted 1809-14 as living in Broadmead (the west half of present Broadmead, between Union and Merchant Sts) and quite a distance from his business addresses for these years of Bread St, Gt Ann St, and Pennywell Lane, suggesting his business was prosperous enough for him to live in central Bristol and commute to the suburbs.

A similar but more pronounced situation occurs with Israel's father

John. Between 1810 and 1815 John Carey is recorded living at Hanham, miles away from his premises on Bread St (now Old Bread St, south of Old Market St) and Lamb St, and even today outside the Bristol city boundary. Carey must have commuted to work by horse or carriage unless he was an absentee proprietor, but in either case was obviously well enough off to afford a country house and run a city business. It is interesting to recall that the last Thomas George, in a manuscript note dated 1952 (see above) claimed his father's great-grandfather had assisted John Carey at the beginning of the C19 when he was producing for the West Africa trade and that Carey had "between 80 & 90 People working for him". For reasons already discussed, this work-force seems impossibly high for a Bristol pipemaking business at any time, but as indicated above John Carey may well have been the leading Bristol pipemaker of his day and have run a flourishing and relatively large concern; as noted in 6: VII(b)(3) the reference to trade with West Africa fits the known historical references at this time, and as the family had been pipemakers since Israel Carey II had taken his freedom in 1756 John Carey may have retained trade connections from earlier times.

As the Bristol industry draws to a close, the directory entries and census returns mirror the pattern of decline. The rapid changing of occupier of various pipemaking premises, the short-lived attempts of various individuals to establish themselves in the later C19, the lessening number of employees by 1861 and onwards and the increasing age of those who remained, and the movement of a number of journeymen and their families to Bath in the 1850s and 1860s have all been discussed. In 1880 Ring's advertise that they are also cigar merchants, and drop the "export" from their pipemaking references. In 1884 the firm of F. Korner and Co of Victoria St appears under pipemakers as an "importer of fancy goods", which must indicate the selling either of imported European clay pipes or of imported briers. The same year T. Lovett of Quay St, a victualler and landlord of the "Greyhound", advertised as agent for the famous clay pipes of Southorn and Co of Broseley, ironic in a city that for its size had once had the biggest clay pipe industry in the country. In 1899 Gibbs and Co of 33 Castle Street advertised themselves as "the largest importer of French pipes in the West of England". The Bristol clay pipe industry, in common with the industry almost everywhere else at least in England, had succumbed to the changing smoking habits of its erstwhile customers.

SECTION VII:
TRADE

(a) HOME (1) Introduction

The extent to which Bristol pipes were traded both at home and abroad is likely to be closely related to the fortunes of Bristol itself as a trading centre, and it is therefore necessary to consider Bristol trade in general before embarking on a survey of its pipe trade.

For the one thousand years of its existence Bristol has been primarily a port, so that shipping, whether coastal or foreign, has played a dominant part in its trade. Willan (1936b, 1964 ed and 1938, 1967 ed) has illustrated in detail that by far the greatest amount of local trade in the C17 and C18 was carried on by river and coastal shipping, for many towns well inland, such as York, Norwich, and Gloucester were ports of note. Trevelyan indeed has described river transport at this time as equivalent to modern railway transport (1942: 137, 1946 ed), and as Willan indicates (1936b: Maps I-III, 1964 ed, showing navigable rivers during the period 1600-1720s and the areas within 15 miles of these rivers), much of England was within reach of navigable waterways.

One reasonable C17 estimate on costs (quoted in Willan 1938: xiv-xv, 1967 ed) calculated that sea carriage was twenty times cheaper than wheeled carriage, and towards the middle of the same century Suffolk clothiers found that legislation designed to prevent fuller's earth being exported to The Netherlands was also preventing its being sent from Rochester - from where most of it was shipped - to Ipswich by sea and that they were paying £6 a ton for land carriage where they had paid 2s a ton for water carriage, an increase of sixty times (Unwin 1927: 287). Writing about the iron industry in the C18, one author notes it has been estimated that the cost of inland transportation for 20 miles was about equal to the cost of freight from the Baltic (quoted in Deane 1965: 105). In 1852, shortly before its decline, the Rainford tobacco-pipe industry took 50,000 tons of clay from SW England. The cost of the clay at source was 20s a ton, and to ship it by sea to Runcorn added another 8s-10s a ton. To bring the clay the last ca.14 miles from Runcorn to Rainford added another 10s or more and brought the final cost to 40s a ton (Berry 1963: 2-3). This phenomenon was not confined to England: Duhamel du Monceau in his account of pipemaking in northern France published in 1771 noted that a hogshead of clay from the Bray area ca.25 miles ENE of Rouen cost six to seven livres at source and that transport to Rouen added another seven or eight livres (Duhamel du Monceau 1771: 5).

The great advantage of water transport was that it took relatively bulky loads with ease - the coal trade, for example could never have existed without water transport, and stone, clay and agricultural products would have been difficult to move otherwise. A C17 estimate was that it would take 100 horses to carry what one boat of 30 tons burden would hold (Willan 1938: 190, 1967 ed). Further, by the C18 English roads were reputed to be the worst in Europe (P. Deane 1965: 70). In 1775 it paid the Horsehay Company to cart its pig-iron from Horsehay near Coalbrookdale in Shropshire to the Severn, ship it by trow some 100 miles to Bristol, and have an agent there ship it to Chester round the Welsh coast rather than send it the 50-60 miles by road to Chester (Ashton 1955: 71; cf remarks on atrocious roads in Staffordshire as late as the 1760s quoted in J. Thomas 1971: 74-5). In the earlier C18 the roads from Bristol north into the Vale of Berkeley and south into the Somerset flats were impassable at certain times of the year (Latimer 1893: 140-1, 170; Minchinton 1954: 72; Marcy 1969: 155-6), as was the road to Bath - the improvement of the Avon in 1727 to permit navigation to reach Bath from Bristol, only 11 miles away (see below), must be seen in the light of the difficulties travellers between Bristol and Bath encountered in the 1720s, 1730s, and 1740s (Latimer 1893: 170, 212, 214, 270). In 1765 it still took ten hrs to travel the ca.40 miles from Bristol to Gloucester (Latimer 376). As late as 1796 one traveller wrote

> the road is very bad. The ruts intolerable and indeed this may be said of all the country beyond Oxford and generally thro Gloucester (quoted in Woolrich 1974: 179).

Latimer (1887: 243), talking of the annual Bristol fairs held in Temple St and St James's Churchyard until abolished by the Council in 1838, gives some indication of the widespread extent of Bristol's contacts.[40] In 1636 the mayor of Penzance wrote the government that 12 Turkish ships lay in St George's Channel (between Wales and Ireland) to capture travellers going to Bristol fair, and the same year it was noted that goods manufactured in parts of London where plague was prevalent were destined for Bristol fair. In 1657 travellers from Tenby and Milford in SW Wales were escorted to Bristol for the fair by a naval vessel and ten years later two frigates had been used to clear the Bristol Channel of French ships which it was said "would have done mischief at Bristol fair". Arrowsmith's Directory (1906 ed: 187) indeed describes the St James's fair as probably the largest of its kind in the C17.

Nevertheless, land transport does appear to have played an appreciable part in Bristol's economy, and was doing so even before the mid-C16 to judge from references to carriers going to Wells and the Somerset villages, to Cirencester, and as far away as Oxford, Reading, and London in the recently-published ledger for 1538-50 of the Bristol merchant John Smythe (Angus and Vanes (eds) 1975: 11 and refs). Minchinton (1954: 73; 1962: 5-6) and Latimer (1893: 288) quote several contemporary sources which indicate widespread road connections from Bristol in the C18: Defoe (quoted in Marcy 1966: 2), talking of the early years of the century, notes carriers operated from Bristol as far as Southampton to the SE and the Trent to the NE; by 1750 there were 94 carriers plying as far as Leeds, Nottingham, and other centres, and by the end of the century links were even more extensive. It is estimated that in the 1760s 150 pack horses and two waggons went to Bristol from Manchester every week with goods for export (quoted in Marcy 1969: 158). The 1801 Matthews's directory listed coaches going as far as Exeter, Weymouth, Portsmouth, London, Oxford, Birmingham, and Milford [Haven]; while waggons went to scores of places in the South-West and south-central England and across the Midlands to places as far away as Lincoln, Yorkshire, and Liverpool. Bristol fairs at the beginning of the C19 attracted merchandise from much of England and also from Ulster; Yorkshire, Lancashire, Staffordshire, Warwickshire, Buckinghamshire, London, and Devon all being listed among other areas (Latimer 1887: 243; cf Anonymous 1906 ed: 187).

Turnpiking of roads in the Bristol area had started in 1727, though a report of 1749 indicates the roads were in as bad a condition then as they had been before turnpiking, and it was not until the second half of the century that the violent opposition to turnpikes which took the form of repeated wrecking of the turnpike gates ceased (Marcy 1969: 156-7). Following this, however, turnpiking was extended and contributed to improved roads in the second half of the century, Bristol having by the 1820s the largest Turnpike Trust in the country, with some 180 miles of road (Buchanan and Cossons 1969: 177-8). In 1754, despite some sarcastic remarks on the Bristol-London road being the worst in Europe considering the money put into it, it was possible to travel the ca.115 miles between these cities in two days (Latimer 1893: 313, 309); seven years earlier it had taken six days (Latimer 1893: 268-9). Three hrs is recorded for the Bath-Bristol trip in 1758 and 2-1/2 hrs in 1794 (Latimer 333, 513), which is not so very much slower than the present rush-hour time by public transport for the journey. In 1775 the Bristol-London journey could be done in 16 hrs (Latimer 418). An Exeter coach was started in 1764, one to Birmingham in 1765, and one to Leicester in 1772, the last meeting the London to Liverpool and Lancaster coaches - themselves only introduced in 1760 - at Coventry and thus considerably extending travel facilities from Bristol (Latimer 367, 400, 309). In 1783 a critic of the postal system noted that a letter despatched with the fast Monday coach from Bristol would be delivered in London on Tuesday morning whereas mail took two days by post-boy (Latimer 458), though the latter time cannot be compared unfavourably with that offered by the postal service of today.

These times, however, were for stage-coach or "flying-machine"; the stage-waggon, which took the freight and the poorer passengers, was much slower. In 1747 London freight was taken to Newbury by waggon and thence by barge, the journey being accomplished "commonly in 12 or 14 days"; by 1758, however, it was taking but five days, and in 1777 the journey could be made in two days (Latimer 268-9, 430). The 5 mph achieved for freight on the London-Birmingham route was considered an optimum, and freight from Manchester to Leeds and Manchester to Sheffield - both distances of 45 miles - took 24 and 40 hrs respectively at the end of the C18. Even as late as 1829 freight between Carlisle and Newcastle upon Tyne averaged only 19-20 miles a day (P. Deane 1965: 72-3). Further, road carriage rates were increasing in the last years of the C18. Turnpike tolls made transport costs to Bristol or Bath of coal from the nearby Somerset coalfields more than the pithead price of the cheaper grades of coal (noted in K. Hudson 1965: 41-2, 97, 1968 ed); in 1805 it cost 8s6d to send a case of files from Warrington to Coventry - a distance of ca.100 miles - by road, as against 2s6d by canal, and the latter transportation was just as fast (Ashton 1939: 96, 97).

The advent of the railway put land transport in a decisively permanent position of superiority over water transport. In Bristol, however, perhaps because harbour facilities were inadequate for much of the century (discussed in Sub-section (b) below), rail connections were not so early nor so important as they were in the industrial north. It is no coincidence that the railway was first developed on a major scale in the north, where time saved had become money saved: the Liverpool and Manchester Railway had been completed in 1829 (Ashton 1948: 87). The Bristol-London line was opened in 1841 (Bath had been reached in 1840) and was in fact the second major intercity line - the Birmingham-London line had been opened in 1838 - but railway connections from Bristol to the Midlands, much of whose trade Bristol had handled until the completion of the Grand Trunk Canal in 1777 had made it much cheaper to ship through Liverpool (see below), were not completed until 1844, and even then the Bristol-Gloucester line, originally designed to be of the same gauge as that from Birmingham to Gloucester, was constructed to the 7-ft gauge and not converted until 1854, goods having to be trans-shipped at Gloucester. The Bristol-Exeter line was completed in 1844, sections being opened progressively from 1841, and in 1848 connections to Plymouth were completed; but connections with South Wales, with which Bristol had had strong economic ties in the C18 (Minchinton 1954: 84), were not effected until 1863, and then the Severn had to be crossed by ferry. Only in 1886, when the Severn Tunnel was finished, did Bristol have direct links with South Wales.

That earlier rail connections with its former Midlands hinterland would have benefitted Bristol is suggested by the growth of Gloucester, described in 1780 as having its former manufactures supplanted by Bristol (quoted in Minchinton 1954: 78), in the C19. The Gloucester and Berkley Ship Canal, finally opened in 1827, made navigation to and from the Bristol Channel easier and with the opening of the Birmingham-Gloucester railway in 1840 the port enjoyed a prosperity great enough to warrant the replacement of the tramroad from the railway to the docks by a direct rail connection in 1862 (K. Hudson 1965: 56, 1968 ed); and improvement of the locks to the Ship Canal 12 years later to allow passage of ships up to 1,200 tons, double the tonnage previously permitted (Buchanan and Cossons 1969: 194-6). Further, the Severn rail bridge, opened in 1879 and the first direct rail connection across the Severn into the Forest of Dean coal area, was designed not as a link to Bristol but as one to Gloucester (Buchanan and Cossons 1969: 218 and 220).

The normal method of selling pipes appears to have been to peddle them round the countryside (cf Ashton 1955: 69, 1961 ed) - as noted earlier (p.150 above), Flanagan of Leicester, Rand and Jennings of Colchester, and Manning of Boston used this method of selling their pipes into this century, and in Glasgow pipe-hawkers used to make weekly rounds, public houses being the most frequent bulk-buyers as pipes were distributed very cheaply or free by publicans to customers. Writing in the middle of the C18, R. Campbell (1747: 326-7, 1969 ed) noted that "Fourteen or Fifteen is Time enough to bind a Lad [as apprentice], because tho' the Pipe-Making is not immoderately laborious, yet their Strength is tried in carrying Pipes to the publick Houses in the City and Suburbs," indicating that peddling pipes was the standard method of selling them at that time and that taverns were the regular buyers; and earlier than this, in an advertisement in the Stamford Mercury of 5 August 1731, Robert Collington, a Stamford Alderman setting up a pipemaking business, announced that "all Traders and Chapmen may be furnished at reasonable rates" (P.K. Wells files), indicating he expected a market both among shopkeepers and hawkers. Mayhew and Fairholt, writing over a century later, indicate that peddling pipes was common in the middle of the last century, though in their examples it was not the maker or his family or assistants who peddled the pipes but professional hawkers. These hawkers, Fairholt notes (1859: 178-9; cf M. Phillips 1918: 166), had their own "pipewalks" round publicans and tobacconists whom they supplied over the years: from this it seems likely that many pipemakers had no direct say in who retailed their pipes, leaving the hawkers to establish which publicans and tobacconists sold their products. (According to Robinson and Spence (1937: 208), among the new by-laws of the London pipemakers' guild dated 23 January 1805 was one forbidding members to hawk their pipes or to have them hawked, a 10s fine for the first offence, 20s for the second, and 40s for the third. Presumably the reason for this was to keep the retail price low in order to encourage more buying, and to check the sale of substandard pipes to hawkers by makers not members of the guild, but the force of this law was clearly dead by the 1850s - the guild itself became extinct in 1868 or 1869, as noted in 3: I). Coolen (1970: 400 n.12) noted that in the middle of last century there was a pipe factory at Fruges in the Pas-de-Calais which in particular turned out a small pipe which was sold in Brittany by hawkers.

In the early 1780s John Frederick Bryant jr of Bristol, trying to make a living in the hard days in Bristol when the pipe trade with the American colonies had ceased, made two rounds a week with a hamper of pipes, frequently covering 20 miles a trip; his wife supplied city customers (Bryant 1787: xxv). In 1714 Charles Wharton of Beverley Parks, Yorkshire, bought Nottingham pipes - probably the ornate style made there (see 1: II and 5: I) - at Gainsborough (Sheppard 1902: 5, 1912 ed), a point some 37 miles from Nottingham and some 45 miles from Beverley. It is possible that Wharton obtained his pipes from Gainsborough because that was the nearest centre to Beverley which sold Nottingham pipes: if so, it suggests that Nottingham makers peddled, or had peddled, their products up to 30-40 miles from Nottingham (though in view of their ornate style they may have been sold over a wider area than ordinary pipes). Gainsborough in the C17 and C18 was developing as a small river port, trans-shipping cargoes from seagoing vessels, particularly from London, to river craft (Beckwith 1967: passim; N.R. Wright 1970: 5): it may thus have become a convenient marketing centre for small traders such as pipemakers.

Work by Peter Wells on Lincolnshire pipemakers (paper by P.K. Wells at the Spring Conference of the Society for Post-Medieval Archaeology, Lincoln, March 1969) suggests a radius of ca.17 miles round Boston for finds of C19 pipes made there and one of ca.12 miles round Spalding for pipes made there by Isasc Bilby in the early C18. The distribution of C19 Boston pipes is particularly interesting because a recent study of the development of Boston has shown a "market radius" based on market-day links by carrier and sailing packets mentioned in White's 1826 directory which coincides exactly with the distribution of pipes for the recently-excavated Boston kiln of the Manning family. The area extends to Wainfleet in the north and Long Sutton in the south, both ca.15 miles from Boston (P.K. Wells in litt. 17 April 1969, see now P.K. Wells 1970: 24; I am very grateful to Peter Wells for much information and discussion on his as-yet only partially published research).

Gant (in litt. 16 April 1968) has found people round Colchester appear to have literally ditched their used pipes, for Colchester-made pipes have turned up in farm ditches up to ten miles from the city centre, again suggesting a market radius of about that distance.

The firm of Turpin and Sons of Macclesfield in Cheshire founded in 1840 used to make three-day trips three or four times a year in a high open box-cart, their rounds covering large areas of Cheshire, Derbyshire, and Staffordshire, suggesting a considerable trading area. Latterly they may have been helped by the declining number of makers in business - they had in fact taken over a firm at Newcastle-under-Lyme in Staffordshire in 1907 and another in Northwich in Cheshire in 1913. The firm continued in production until 1927, and was still selling accumulated stock in 1942 (G.C. Spence 1942: 56-7).

Seventeenth-century evidence suggests that given good roads villagers living as far away as 15 miles from Preston made regular use of that town's facilities and that there was contact from as far away as 20 miles. Evidence for Lichfield too suggested an approximate radius of contact of ca.15 miles - a major factor naturally was the limit of a day's return journey wither by horse or foot (H.B. Rodgers 1970: 110-2 and 112 n.1). Talking of the Staffordshire pottery industry towards the end of the C17, when it had not yet reached the factory stage (cf p.548 above), Plot (1686: 124) noted that the pots were sold "cheifly to the poor Cratemen, who carry them at their backs all over the Countrey, to whom they reckon them by the piece,...." There follows a description of the complex system whereby the amount of hollow ware (pots, jugs, etc) and flat ware (plates, etc) was calculated for the various sizes of the items, clearly indicating this method of retailing to be well established. Before the C18 the "Countrey" was probably restricted to Staffordshire - a "Burslemware" carrier is recorded dying at Wednesbury in south Staffordshire in 1703 - but Staffordshire ware is known in small quantities from places on natural routes out of the country - Chester, Kidderminster, Worcester, and Bristol (Weatherill 1971: 76-80). Among miscellaneous equipment noted in potters' probate inventories for The Potteries during the period 1662-1761 were pack-saddles (Weatherill 1970: 7), suggesting the potters themselves also made rounds, though no doubt only local. By the 1730s there was a steadily-increasing river trade down the Weaver and thence to coastal and oversea distribution (Weatherill 1971: 80-95); but in view of Wedgwood's noting at one time in the earlier C18

> Only one horse and one mule left in Hanley. No carts scarcely in the country. Coal carried on men's backs

(quoted in J. Thomas 1971: 6, cf 105) and the atrocious state of Staffordshire roads almost a century after Plot was writing (quoted in J. Thomas op. cit. 74; cf Moisley 1952: 153-4; Rowlands 1968: 52, 54, 57; Weatherill 1971: 95) - Shaw noted that chapmen kept gangs of horses and that flint used in white saltglazed stoneware production was carried either by horse or by men (S. Shaw 1829: 169, 1970 ed) - it is clear that the Staffordshire ceramics industry could never have developed as it did without the improved modes of transport available from the later C18 onwards (cf J. Thomas chapts 7-9; Moisley 1952: 154-5, 156 fig 4; Weatherill 1971: 80-95). It was not until 1760 that an act of parliament was passed for repairing

Staffordshire roads and opening new ones there, and initially it was opposed by the populace who "rushed en masse into open disturbance" because they feared an improved road system would lead to their livelyhood either being "wholly destroyed, or taken out of the country" (S. Shaw loc. cit.). However, though coal was carried on these roads at specially reduced rates, clay and flint were not, and the transport of ceramics by horse or waggon has some obvious disadvantages, so that it was the introduction of the Grand Trunk (subsequently called the Trent and Mersey) Canal built 1766-77 which made a decisive improvement to communications for The Potteries, tonnage transported on the canals increasing until ca.1870 (Beaver 1964: 10 and 12, 15-17).

In the case of Bristol its Turnpike Act of 1726-27 provided for a dozen turnpiked sections of road radiating from the city up to ca.15 miles and joining turnpiked sections of other trusts, for example that at Bath, where turnpiking had begun with an act of 1706-07 (Buchanan and Cossons 1969: 177-8). However, traffic by wheeled vehicle between Bristol and most of its surrounding villages remained almost unknown into the second half of the C18 - ca.1760 not more than four carts a year went from Clevedon to Bristol, almost everything being carried by pack-horse (Latimer 1893: 325), and well into the 1820s pack-ass trains were still being used in addition to waggons and carts to transport coal from the north Somerset coalfields (Bluhm 1971: 55). In the late C18 H.O. Wills I, the founder of the Bristol tobacco-firm, travelled around the city collecting orders which were later delivered by horse and cart; in the last decade of the century the firm extended its trade into Somerset, Wiltshire, Devon, and Cornwall, Wills himself travelling on horseback, or where possible by horse and dog cart, to surrounding market towns and villages with samples of tobacco and snuff. This proved so successful that the firm hired two, or possibly three, full-time travellers, whose orders were then dispatched from Bristol by local carriers, barges, or coastal vessels, though not, apparently, without many headaches to the firm caused by unsatisfactory transport (Alford 1973: 26-7). Wilcox indeed has indicated roads in the Bath area were deteriorating in the later C18 because of increasing heavy traffic, one brewery of the period increasingly using water transport in the 1780s and 1790s to transport their beer to Bristol (Wilcox 1971: 28).

Among the items listed in the probate inventory dated 1727 of the Arundel pipemaker William Artwell (G.H. Kenyon 1958: 106 and Atkinson 1972e: 39) was a horse and bridle and "a pair of hampers on a packsaddle," which clearly indicates Artwell went on his pipe-rounds by horseback. Artwell's pipes have been found at Shoreham, Lewes, Horsham, and Chichester - at which last he was married in 1693 though there is no evidence he actually worked there (G.H. Kenyon loc. cit.; Atkinson 1967: 315 and 1970b: 161 n.1) - indicating trade to points from 10 to 25 miles from Arundel. The inventories of the goods of two deceased Lincolnshire pipemakers, John Fox and Isaac Bilby, both of Spalding, and of a deceased Cornish pipemaker, Nicholas Hambly of Truro, give similar indications: the Fox inventory (P.K. Wells files), dated 1671, includes a mare and a gelding, a "pr of homprey" (hampers?), a "pr of pedds" (peds - wicker hampers, or hampers with a lid (OED); usually slung in pairs over a horse's back (G.E. Evans 1960:

213, 1967 ed)), a "panell" (panel - type of saddle), and a pack-saddle; the Hambly inventory, dated 1690, includes "one horse and a pack saddle" which were together valued at £1 10s (Douch 1971: 150, cf 147); while the Bilby inventory, dated 1728, includes a mare, bridle, and hamper valued together at £4, a gelding valued at 15s, and "pannell & hampers" worth 3s (P.K. Wells files; cf P.K. Wells 1972: 14). A third deceased Lincolnshire pipemaker's inventory, that of Matthew Heblethwight of Lincoln and dated 1729/30, does not mention any saddles or hampers, but a horse valued at £1 10s and an "old mare", rather surprisingly valued higher, at £2 10s, are noted, again suggesting transport was by horse (P.K. Wells files). The rather detailed inventory of the effects of a deceased Norfolk pipemaker, William Case of Downham Market, prepared in 1691/2, lists a mare - valued at £4 - a saddle, bridle, and "small cuirie(?) carte", this last valued at 15s (Oswald in litt. 11 October 1972), suggesting Case, who appears to have been fairly well off (cf pp443-4), may have used a horse and trap to sell his products. As noted in Section III above, the Bristol apprentice-roll entry for John Sinderling sr in 1653 indicated he was to receive inter alia at the end of his term £3 or a mule worth that amount, suggesting Bristol makers traded their pipes the same way Artwell did. Much later, as will be shown, there is evidence that Bristol shipped pipes to centres in the South-West distant enough that they must have gone by rail (Section VII(a)(2) below).[41]

Water transport was slow, but no more slow than road freight, to judge by the figures given earlier, though obviously it depended on whether goods were going upstream or down - in 1809 it took 3-1/2 days to travel from Oxford to London by the Thames and 6 days to make the return journey (Willan 1936b: 102 n.5, 1964 ed). By the C18 canal traffic could average 2-1/2 mph, which as Willan says (1936b: 102, 1964 ed) compared favourably with other forms of goods carriage until railways arrived. However, if roads could be adversely affected by weather so could canals: frost, flood, and drought all could hold up traffic. In some trades speed of transport could be more important at times than cost - for example in the tobacco trade, where leaf had to be transported quickly from port of landing to factory. Shipping tobacco from Liverpool to Bristol by canal even involved knowing the tides in the Severn, otherwise leaf could be held up for 12-14 days (for examples of these and other problems with canal transport encountered by Wills of Bristol in the early C19 see Alford 1973: 42-4).

As for costs, however, it was calculated in 1766, the year the Grand Trunk (or Trent and Mersey) Canal was started, that canal transport cost 2s6d a ton for ten miles while land carriage for the same distance was 8s6d a ton (Warillow 1960: 91). Other figures show that canal transportation was consistently a half to a quarter the cost of road transport at the end of the C18 (Ashton 1955: 89, 1961 ed), and the Warrington-Coventry costs noted above indicate the same comparisons for 1805.

In 1835-36, on the eve of the railways, the Grand Trunk Canal took 185,000 tons of material and merchandise to and from Stoke-on-Trent: ca.144,000 tons were imports and of that ca.70,000 tons were clay and stone from Cornwall and Dorset. About 1870, when canal traffic was at its height, 138,000 tons of potters' materials were being imported annually with 65,000 tons of finished pottery being exported; in addition, 207,000 tons of iron ore and 357,000 tons of coal were being transported, either locally or out of the district. In 1937, 107,000 tons of potters' materials came by water, and though by 1952 the figure had dropped to 25,000 tons, kaolin in 1960 could be brought from the south coast of Cornwall to The Potteries in only four or five days by sea and canal, and this was still the cheapest means of bringing the clay (Warillow 1960: 94; Beaver 1964: 15,16).

Small loads and material for places not near waterways would undoubtedly have had to go by land, or else - and this may have been the case in many places - many people would have had to forego certain non-essentials. From Willan's remarks on coastal trade, the glassmaking and ironware trades in Bristol seem to have been of major importance (Willan 1938: passim, 1967 ed), and glass and iron items may have been the type of essentials - with a high value-to-weight ratio and the product of specialist craftsmen - which would be sent by land to places away from a water route. Willan also notes the Barnstaple and Bideford were important C18 ports for importing tobacco - indeed the latter was importing more tobacco in the C18 than any port save London - but both seem to have distributed the tobacco largely, if not wholly at times, by land (Willan 1938: 168 and refs, 1967 ed). Hamilton (1926: 129, 1967 ed) has suggested that the growth in the second half of the C17 of small manufactured specialties in Birmingham - the "toy" industry - was partly a result of Birmingham's poor transport facilities inhibiting the production of heavy goods.

The Bristol Channel and Severn basin in particular formed a Bristol-dominated area, and one already flourishing before the mid-C16 as the 1538-50 ledger of the Bristol merchant John Smythe shows, with its references to Bewdley, Tewkesbury, and Bridgwater trowmen shipping goods as far north as the Worcestershire ports for overland transport to the Midlands, south to Minehead, and west to South Wales (Angus and Vanes (eds) 1975: 11). The Severn, while not a trouble-free river, was the only major English river navigable without aids such as locks, flashes, and weirs (Willan 1937b: 69). By the C17 it was navigable as far as Shrewsbury, some 130 miles from Bristol, and in the C18 navigation was extended to Welshpool, some 25 miles farther (Willan 1937b: 69) and Bristolians were involved with the early iron industry at Ironbridge, 15 miles below Shrewsbury (Minchinton 1954: 84). Defoe, writing in the first quarter of the C18, noted that "by the Navigation of two great Rivers, the Wye and the Severn, They [Bristol merchants] have the whole Trade of South Wales, as it were, to themselves, and the greatest Part of North Wales" (quoted in Marcy 1966: 2). "Not only all South Wales is supplied from Bristol with every article of foreign commerce," wrote an observer in 1784, "but likewise the cities and towns of the Severn", and ten years previously another writer had observed that "If we consider Domestic Trade or inland Navigation. Bristol is without rival" (both quoted in Minchinton 1954: 79). Bristol trade with "nearly the whole of North and South Wales" was noted again as late as 1799 (quoted in Marcy 1966: 6). About 1780, John Frederick Bryant jr twice went to Carmarthen, "that place taking off great quantities of Bristol goods", in attempts to establish a market there for his pipes, though he was unsuccessful in this, getting "many promises of support" but nothing coming from them (Bryant 1787: xxiv-xxv).

The Stour gave access towards The Potteries and Birmingham and the Salwarpe to the Droitwich saltpans, although the improvements allowing navigation beyond Stourbridge in the later C17 were apparently not long-lasting (Willan 1937b: 71). Only the Bridgewater-Brindley canals in the second half of the C18 put Liverpool in a decisively favourable position for the north Midlands trade (Little 1954: 136, 1967 ed; cf Marcy 1969: 170-1), for Midlands trade had come through Bristol since medieval times, for example Coventry alabasters and cloths for Iberia (Carus Wilson 1933b: 186-91; MacInnes 1939: 30-1; Little 1954: 78, 1967 ed; Sherborne 1965: 14-15). Plot (1686: 121-2) noted that the highly-esteemed Stourbridge clay used for glass-foundry crucibles was sent by land to Bewdley then shipped down the Severn to Bristol and thence to London. Imports, such as the Swedish iron used by the Birmingham and south Staffordshire industries, came via Bristol and the Severn (Allen 1929: 15, 1966 ed; Little 1954: 157, 1967 ed). As late as 1766, the year the Bridgewater-Brindley Grand Trunk Canal was started, three waggon-loads of Burslem pottery, totalling eight tons, were sent every week to Bewdley to be shipped to Bristol for export, ten tons of clay and other goods being taken back to Burslem (Warillow 1960: 80); but the completion of the canal 11 years later made the exporting of Staffordshire pottery through Liverpool vastly cheaper (I. Noël Hume 1969b: 22; cf 1972b: 230). Even as late as 1788, if John Aikin's *England Dilineated* published in that year is accurate, Bristol had not wholly lost the Midlands export trade, for Aikin noted that Droitwich salt; woollens, stockings, and hardware from Birmingham and Wolverhampton; and earthenware from Staffordshire still went through Bristol, though "Liverpool has gained upon Bristol, chiefly on account of the superiority of the canal navigation to that town, above the difficult and uncertain navigation of the Severn" (quoted in Marcy 1966: 3). In 1794 Matthews's directory lists Severn trows going as far north as Bridgnorth and others connecting with various other shipping routes at Stroud, Gloucester, Tewkesbury, Worcester, and Bewdley. The remnants of Severn trade did indeed continue for almost a century and a half after this, for Severn trows continued to ply regularly to Bristol and other estuary ports until the 1930s (Buchanan and Cossons 1969: 176).

The Bristol Avon was less useful, for it was not until 1727 that it was made navigable as far as Bath only some 11 miles upstream (Willan 1936a), but the Warwickshire Avon was navigable to within four miles of Warwick - some 50 miles above its confluence with the Severn at Tewkesbury - by 1641 (Willan 1937b: 70). Among the rivers which flowed into the Bristol Channel, the Parret, originally navigable to Bridgwater, was improved upstream until Taunton was accessible by its tributary the Tone in 1717 (Willan 1937b: 73-4). In the second half of the C17 the Wye allowed navigation as far as Hereford - far beyond Llandogo which K. Hudson (1965: 119, 1968 ed) mentions as a high-point in the river trade but which is only the approximate head of the tidal stretch (One-Inch OS map 7th ser. sheet 155) - and later the Lugg was improved to extend navigation as far as Leominster. Although the whole Wye navigation caused much difficulty it was used both for trade between towns on its system and for trade with the Severn (Willan 1937b: 74-7) - Matthews's first Bristol trade directory of 1794 lists regular Wye trows operating as far as Hereford.

Probably largely because of the widespread river connections, but also no doubt because there were never sufficient concentrations of industry in suitable areas and therefore never the financial resources, there was never any major canal-building within the Bristol hinterland, and those canals which did connect with the Severn basin tended to draw away trade from Bristol rather then take it there. The south Midlands had been linked by canal to the Severn in 1769 and again in 1772 (Ashton 1948: 82-3; 1955: 88, 1961 ed), but as already noted the completion of Grand Trunk Canal in 1777 opened the way to Liverpool and trade hitherto coming south to Bristol went north to Liverpoorl and trade hitherto coming south to Bristol went north to Liverpool. Similarly, the linking of the Severn basin with Kingston upon Hull by canal in 1772 gave Midlands goods access to an east-coast port which by 1800 ranked third among the outports (Ashton 1955: 89, 1961 ed). The Thames and Severn Canal, opened in 1789 and giving direct access to London, passed well to the north of Bristol and concentrated mainly on shipping Forest of Dean coal and Midlands merchandise, entirely bypassing Bristol. The Kennet and Avon Canal linking Bristol directly with London was not completed until 1810 (Buchanan and Cossons 1969: 186-7).

The "metropolis of the West" concept illustrated by Minchinton (1954) emphasizes the widespread nature of Bristol contacts already noted by Willan (1936b: *passim*, 1967 ed and 1938 *passim*, 1967 ed) in his studies of coastal and river trade (cf McGrath (ed) 1955: xviii, 1968 ed). As a large population centre Bristol needed much food produce: Bridgwater sent peas, beans, and wheat; corn came down the Severn and Warwickshire Avon; Cheshire cheese and salt came down the Severn; cider down the Wye; butter and cattle from South Wales; cattle also from Somerset. As an industrial centre Bristol took Pembrokeshire and Carmarthenshire wool for its cloth industry; the Bristol delft industry according to a Swedish observer in 1767 (quoted in Charleston 1963: 327) was using great quantities of wood from Wales, pipeclay was being shipped from Poole and Bideford. In return Bristol shipped iron, lead, nails, leather, soap, sugar, candles, salt, grocery wares, cloth, wool, butter, tobacco, wine, beer, earthenware, mercury, haberdashery, coal, tin, hops, hemp, tar, pitch, glass bottles, oranges, and lemons in the C17 (Willan 1938: 172, 173, 1967 ed).

The Poole trade indicates that Bristol contacts extended round Land's End - pipeclay shipped from Exeter must have been either Poole or South Devon clay being reshipped - and other evidence indicates considerable trade not only with Exeter but as far as London along the south coast: Bristol earthenware was sent to Gloucester, South Wales, to the South-West and as far as Southampton. (Willan's studies indicate that Poole had a virtual monopoly in the pipeclay trade, shipping at least as far north as Hull on the east coast and Chester on the west. Further, certainly Hull and East Anglian ports reshipped the clay inland by river, and clay was reshipped from Hull along the coast to Bridlington. Bideford pipeclay, however, was also shipped at least as far north as Chester, including to Bristol.) Matthews's directory of 1794 notes market boats to Chepstow, Newport, and Caerleon and ships sailing to 32 ports in Wales and the South-West from Chester to Poole as well as places as far distant as Greenock, Lancaster, and London.

Bristol investment in the C18 centred mainly, as is noted below, in South Wales, but Bristolians had interests in tin mines in Cornwall, lead mines in Cardiganshire, slate quarries in North Wales, and were closely connected with the birth of the industrial revolution at Coalbrookdale in

Shropshire, on the upper Severn (Minchinton 1954: 84).

With all this as a background, therefore, any area likely to represent the sphere of Bristol home trade has to be defined first in terms of river and coastal routes and secondly with land routes. The latter were predominantly those which went east and crossed the Cotswolds, spreading out to the NE and SE beyond; and the Severn and its tributaries to the N and NE and the Bristol Channel to the W and SW are the obvious lines for water connection (Willan 1936b: Maps I-III, 1964 ed; 1938: chapt X esp. pp171-80, 1967 ed; MacInnes 1939: 20-1; cf Minchinton 1954: 71-2; 1962: 5).

One feature which comes out strongly in Willan's studies is the apparently illogical way trade appears to have been organized even within this relatively small area. Bristol has been associated with the wine trade since medieval times (e.g. Sherborne 1965) and with the tobacco trade since the beginning of the C17 (e.g. MacInnes 1926), yet while Willan records these products being reshipped from Bristol he can also record wine and tobacco being shipped to Bristol from Exeter (1938: 161, 1967 ed) - indeed even in the C15 wine was being shipped from Chepstow, just across the Bristol Channel (Waters n.d.: 2nd page). Bideford sent sugar and Newfoundland train-oil to Bristol (Willan 1938: 167, 1967 ed), yet Bristol had been associated with the Newfoundland trade since the beginning of the C17 and one of her main imports was sugar from the West Indies trade (e.g. in MacInnes 1939 and Minchinton 1954 and 1962; Buchanan 1967: 11; Buchanan and Cossons 1969: 67-70). South Wales wool was shipped to Bristol clothiers yet Bristol also shipped out wool (Willan 1938: 50, 1967 ed); South Wales iron was shipped to Bristol, where it was reshipped for the South-West and for London (Willan pp69-70). Cornish and Devon copper was shipped direct to South Wales, but it was also shipped to Bristol where some was apparently reshipped to South Wales (Willan pp73-4).

Two of the most flourishing industries in Bristol, to judge by the coastal shipping records, appear to have been the manufacture of glass bottles and metal products (cf Minchinton 1954: 77; 1962: 6, 7; Buchanan 1967: 10; Buchanan and Cossons 1969: 145-8), yet Bristol took most of Gloucester's glass and iron products (Willan pp98-110); indeed throughout Gloucester appears to have reshipped the Severn basin produce to Bristol rather than it coming directly to Bristol. There is a record of clay pipes being shipped to Bristol from Caerleon in 1656 (Talbot 1969: 131) and to Bristol among other places from Barnstaple in 1681 (C.M. Watkins 1960: 27), despite the Bristol pipemakers' guild regulation of 1652 forbidding the sale there of any non-Bristol pipes.[42] (The Caerleon reference is curious, for it is not known to have been a pipemaking centre, but in 1700/1 there is a record of two tons of pipeclay being shipped there from Bristol (Talbot loc. cit.) which is suggestive, though it might have been for purposes other than pipemaking.)

Such features, however, are not restricted to Bristol: Hull, a pipemaking centre of some importance, received pipes from London in 1683 (Willan p.109) by which time Hull was making its own pipes (Sheppard 1902, 1912 ed); Whitehaven was, if we can believe the records, both sending and receiving slates (Willan pp187-8). One result of this is to blur the origins and destinations of goods: coal shipped from King's Lynn must be

Newcastle coal; pipeclay shipped from Hull and King's Lynn must be Poole clay. Clay pipes shipped from Lancaster to Grange-over-Sands were almost certainly those shipped to Lancaster from Liverpool (Willan passim) - and even these could have come from Chester (see 4: III). Such cases, including ones concerning pipes and pipeclay, could be multiplied; in some cases the answer may be that it was not, for example, the same iron or glass product shipped as was received, but one does get the impression that in many cases trade was disorganized and speculative in nature. The 1634 Boston port-books reference (P.K. Wells files) to a Scarborough vessel taking pipeclay - which must in the first place have come to Boston from Poole or some other south-coast port - from Boston to Danzig is an example of this sort of situation.

Certainly there were plenty of places specializing in producing certain commodities. North Devon sgraffito ware was being produced before 1650, for it had reached Bristol by 1652-56 (K.J. Barton 1965: 193),[43] and it occurs in North America - virtually confined to the tobacco states of Virginia and Maryland - in archaeological contexts of ca.1664-95 (C.M. Watkins 1960: 58-9; Alexander in litt. 23 August and 23 October 1974 for material from the Buck site, Maryland; also Harper 1956: 26-7 for sherds from New Brunswick and 1966: 111 for sherds from Newfoundland; Ekholm and Deetz 1971: 50 for a second Massachusetts discovery). More general North Devon pottery types - identifiable by their unique gravel tempering - had appeared in North America by 1635 and continued to be exported until ca.1760 (C.M. Watkins 1960: 59); and North Devon wares were being exported to Ireland by 1601 (C.M. Watkins 1960: 27; cf Willan 1938: 167-8, 1967 ed) and are known archaeologically or from documentary sources from all along the South Wales coast and at least as far north as Cardigan (Willan loc. cit.; C.M. Watkins 1960: 32 and refs; J.M. Lewis 1967: 106, 113; Talbot 1969: 128-9; J.M. Lewis 1970: 39; cf 1755 ref. quoted in Watkins p.28, Lewis 1970: 40 n.24, and J.K. Knight 1970: 410 noting "great quantities" of pottery from Bideford "exported to Wales, Ireland, and Bristol"; cf also exhibition of excavated material at Spring Conference of the Society for Post-Medieval Archaeology, Cardiff, March 1968; and display at Royal Institution of South Wales, Swansea, seen 1969) and the Scilly Isles (Keen 1969: 147 n.6, Miles and Saunders 1971: 17).

This trade appears to have been a specialized feature within the South-West; there may be others (the emergence of Barnstaple and Bideford as major tobacco ports is no doubt the connection with the locally-made high-class wares occurring in the major tobacco states in North America in the later C17, and the strong wool trade between North Devon and Ireland in the early C17 (Kearney 1959: 134, 153, 154 n.3) probably accounts for North Devon coarse earthenwares there). The studies at present being done on the Donyatt pottery industry of south Somerset, for example (Coleman-Smith and Pearson 1971: 1-6), have indicated another widespread South-West industry whose products or immitations have so far been found as far away as Plymouth, Bridgwater, Wells, Salisbury, and Southampton.

There were certainly also local pipe industries within the South-West. In addition to that at Barnstaple, which has yet to be studied (Wallis 1889: 87-8; T.M. Hall 1890: 317-23; Rippon 1917: 113-5) though its products are known from as far away as Worcester and Plymouth (Oswald 1970a: 134), industries at Amesbury (Stevens 1876: 101-8; D.G. Hurst 1968: 114), Marlborough (Atkinson 1965c, rev. ed 1969b; 1973), and in the C19 at Nantgarw near Cardiff (I.J. Williams 1932: passim, esp. pp139-43; Nance 1942: 412-3) all appear to have been more than purely local industries, and at a local level probably most places of any size had a pipemaker by the later C17. Cardiff certainly had pipemakers by the end of the C17 (M.I. Williams 1962: 86), and though the Taunton industry has never been examined there was certainly a flourishing industry there in the C18, as evidenced by the many Taunton-marked pipes in the Somerset County Museum, Taunton, an industry moreover which used Oswald's type 10 style, as did Barnstaple, as opposed to the type 9 style used in Bristol and Marlborough.

At the end of the C17 Lyme Regis in Dorset was sending pipes to other Channel ports and was importing pipeclay from Poole (Willan 1938: 158, 1967 ed), suggesting a substantial industry, though nothing is known of it otherwise (unfortunately it proved impossible to contact the Lyme Regis museum - see below). In 1687 Poole was sending both pipes and pipe clay to Southampton (Patterson 1966: 3). Gloucester was certainly producing pipes by ca.1700 and appears to have had a Broseley-derived industry on evidence noted by this writer (see Sub-section (c) below), and Willan records (1938: 176, 1967 ed) Gloucester taking pipeclay from Bridgwater (presumably reshipment of Poole or North Devon clay). Willan also notes (p.163) Plymouth sending out pipes apparently of local make towards the end of the C17, and at the same time receiving Poole clay; and Oswald's recent study of pipes found in Plymouth (1970a) indicate pipes were being made there by ca.1600 and into the present century.[44] The most famous pipe industry of all within the general area, and one perhaps as important as that of Bristol, was that at Broseley in Shropshire, beside Ironbridge on the Severn some 15 miles below Shrewsbury and well below the head of navigation of that river. The distinctive Broseley industry, where the Southorn family last century and into this produced perhaps the premier-quality British clay pipes (see Appendix II) and where the same family has recently restarted production (pp145 n18and 262 n.4 above), started ca.1630.

There is more specific evidence which can be considered when delimiting the area likely to have been most closely connected to Bristol. One source is the Bristol apprentice books, which mention the home of those apprenticed to Bristol burgesses (or more accurately, the home of the apprentice's father).[45] A breakdown of these homes by county is available for the 1,426 apprentices for the period 1532-42 where place of residence can be identified (Hollis (ed) 1949: 197). The percentages are as follows (actual figures are given in brackets):

Bristol	28%	(404)	Wiltshire	2%	(35)
Gloucestershire	13%	(185)	Glamorgan	2%	(31)
Somerset	10%	(147)	Lancashire	2%	(30)
Shropshire	5%	(75)	Herefordshire	2%	(28)
Worcestershire	5%	(72)	Warwickshire	1%	(18)
Monmouthshire	5%	(65)	Brecknockshire	1%	(16)
Staffordshire	3%	(41)	Middlesex	1%	(15)
Pembrokeshire	3%	(36)	Cheshire	1%	(13)

In addition 7%, or 100 individuals, came from Ireland. Of these, counties were known for only 45 individuals. Of these 45 the largest single number came from Co. Cork with 16, followed by Co. Waterford with nine. Other counties, listed in order of frequency, were Kilkenny, Dublin, Louth, Wexford, Meath, Limerick, and Tipperary.

A breakdown by county is also available for those apprenticed to Bristol merchants for the periods 1600-30 and 1670-90 McGrath (ed) 1955: 255-7, 1968 ed). It cannot be said that those apprenticed to Bristol merchants are likely to be representative of Bristol apprentices in general, for they usually came from substantial families who could pay premiums and bonds required and provide capital to assist them exploit opportunities when abroad on their master's business (McGrath (ed) 1955: xi, 1968 ed; McGrath 1970: 5-6; cf Willis and Merson (ed) 1968: xvii on Southampton merchant apprentices). Certainly, out of 536 cases in the two periods referred to where the occupation of the apprentice's father was given, gentleman and squire appear 138 times, merchant 127 times, and yeoman 53 times, which would not be representative of most trades, but the place of residence was identified in 370 cases for the period 1600-30 and 222 for 1670-90, large enough figures for percentages to be calculated and compared to those for the period 1532-42. The figures are as follows:

	1600-30			1670-90	
Bristol	35%	(130)	Bristol	47%	(104)
Gloucestershire	15%	(56)	Gloucestershire	13%	(28)
Somerset	15%	(56)	Somerset	10%	(22)
Devon	5%	(20)	Wiltshire	5%	(12)
Monmouthshire	4%	(15)	Monmouthshire	4%	(9)
Shropshire	4%	(15)	Dorset	4%	(9)
Wiltshire	3%	(12)	Herefordshire	2%	(4)
Herefordshire	2%	(8)	Cornwall	2%	(4)
Staffordshire	2%	(6)	Lancashire	2%	(4)
Worcestershire	2%	(6)	Glamorgan	1%	(2)
Dorset	2%	(6)	Worcestershire	1%	(2)
London and Westminster	2%	(6)	Montgomeryshire	1%	(2)
Glamorgan	1%	(5)			
Cornwall	1%	(5)			
Warwickshire	1%	(5)			
Pembrokeshire	1%	(3)			

In addition, a single apprentice whose father resided in France is noted for each period, and one from Jamaica for the second period. Two from Ireland are recorded during the earlier period, a number which increases to 6 (3%) during the later period.

The comparable figures for those apprenticed as pipemakers, an occupation certainly unlikely to attract a cosmopolitan following, were as follows:

Bristol	69%	(239)
Somerset	10%	(34)
Gloucestershire	9%	(32)
Monmouthshire	5%	(16)
Brecknockshire	2%	(6)
Herefordshire	1%	(4)

Dorset	1%	(4)
Pembrokeshire	1%	(3)
Wiltshire	1%	(2)
London	1%	(2)
		(342 out of a total of 347)

(These figures cover the period 1619-1827.)

These sets of figures are discussed in more detail in Section III above, but the most obvious points which emerge are:

(a) Bristol is listed far more often - two to seven times more frequently - than the next most common source, and with a tendency to become more prominent as time progressed; and it must be remembered the city comprised a far smaller area then than now and that Brislington, for example, would be under Somerset and Henbury, Gloucestershire

(b) Gloucestershire and Somerset, the two immediately adjacent counties, are the next most frequent contributors, with virtually identical contributions

(c) these two counties, however, run a very poor second and third to Bristol itself; and

(d) other nearby counties, such as Wiltshire and Monmouthshire never contribute more than 5% and almost always markedly less.

Points (a) and (b) are in no way surprising, but point (c) and particularly point (d) are - one might have expected, for example, Wiltshire and South Wales counties to have been better represented.[46] Further, the tendency for Bristol itself to become a progressively more prominent source as time went on, which the pipemaker entries certainly show, is perhaps surprising when one considers that Bristol as a metropolis had its widest influence in the C18 as Minchinton (1954) shows, not only in England and Wales as already indicated but in its trade with Ireland, the North American colonies, the Mediterranean, and Germany and the Baltic. The two merchant apprentices from France and the one from Jamaica in the C17 suggest Bristol's widespread contacts this early, though doubtless their parents were Bristolians living abroad, but the relatively large number from Ireland must certainly reflect Bristol's economic influence.

A noticeable point in the C16 figures is the indications of contact throughout the Severn basin and beyond into Staffordshire, Cheshire, Lancashire, and even Westmorland contrasted with the virtually total lack of contact south of Somerset into the South-West (cf Hollis (ed) 1949: 15-16). In the C17 contacts with the latter area are slightly stronger, but the emphasis is still mainly on the Severn basin. Those apprenticed as pipemakers, as perhaps befitted their relatively humble social standing, did not come from far afield, the lower Severn basin and South Wales accounting for most of the relatively few who did not belong to Bristol, Somerset, and Gloucestershire. Again, there was little contact with the South-West. In all cases there was a noticeable lack of apprentices from the east - Wiltshire and beyond.

The figures do indicate, however, that Bristol drew apprentices from a wide area. By contrast, the figures for Southampton, a port in decline, indicate that between 1610 and 1710 no fewer than 96% of the apprentices taken came from the county of Hampshire, including the Isle of Wight, 60%

coming from Southampton itself and the adjacent parishes (Willis and Merson (eds) 1968: xxix-xxx). Among those who sought their fame and found fortune either for themselves or their families in Bristol were the Carwardines from Herefordshire, the Frys from Wiltshire, the Hollisters[47] from south Glocestershire, and the Wills from Wiltshire (Little 1954: 113, 171, 112-3, 172, 1967 ed). The origin of some families is sometimes suggested by their surnames (cf Carus Wilson 1933b: passim): the Cherringtons (in various spellings) recorded as pipemakers in the C17 and C18 probably came from Cherington in Gloucestershire, north of Tetbury (Cherington in Warwickshire, north of Chipping Norton, is less likely; Cherrington in Shropshire, west of Newport, much less likely) while the forbears of Richard Nunney, a pipemaker in the second half of the C17, no doubt came from Nunney SW of Frome in Somerset.

Another method of establishing the extent of Bristol's trading influence is to examine the archaeologically-known distribution of Bristol-produced goods. Two types of Bristol pottery - one datable to ca.1680-1760, the other to medieval times - have been studied, and their distributions have been plotted on FIG 152. The former material, a glazed slip-decorated Staffordshire-like ware, was probably made in Bristol, and fragments bearing the dates 1708, 1712, 173(4?), and 1743 are known. What appears to be the forerunner to this type has subsequently appeared in Bristol in a 1652-56 context (K.J. Barton 1965: 194). Unfortunately the number of find spots is not yet great enough to permit definite conclusions to be drawn from the map, but the distribution at present suggests trade north into south Gloucestershire (but apparently not as far as Gloucester) and south into Somerset but hardly any across the Severn and none at all to the east (K.J. Barton 1962: 167, 168). The second group, known as Ham Green pottery from a kiln at that place (near Pill, on the south side of the Avon below Bristol) which on excavation was found to have produced this ware, is not yet firmly dated. Originally Barton (1964: 125) tentatively suggested a C13 floruit, but subsequent evidence (K.J. Barton 1968) suggests the pottery was already being produced in the C12. Its distribution is much more widespread than that of the yellow slipware (but note that Barton's distribution map - 1964: 116 fig 8 - does not wholly agree with his list of find-spots) and indicates considerable trade with South Wales coastal settlements and via the Usk, Wye, and Severn routes. Distribution south of Bristol appears to have gone virtually no farther than the south slopes of the Mendips; the eastwards spread is similarly limited, only one find being known east of Bath (the distribution shown in FIG 152 is based on the lists in K.J. Barton 1964 and 1968; also Arch. Rev. 4 (1969) s.v. Wraxall; op. cit. 5 (1970) s.v. Alkington; and Fowler and Walthew (eds) 1972: 55). The Welsh distribution and the finds from Dublin can be paralleled in Bristol's C15 trade (Carus Wilson 1933b: passim); the lack of penetration east may be connected with the poor transport afforded by the Bristol Avon, not navigable before 1727 even as far as Bath, and this may equally be a reason for the lack of yellow slipware of the period ca.1680-1760, despite the widespread road transport cited by Minchinton.[48] (An interesting comparison can be made between the distribution of C12-C13 Ham Green ware and that of jugs with a characteristic frilled neck-band and datable to the late

C13-early C14 which, though their centre or centres of manufacture are as yet unknown, are common in the Brisol hinterland. Here, trade to the south and SW reached central Somerset and to the east as far as east-central Wiltshire, rather farther than Ham Green ware had spread, but there is virtually no spread into south Gloucestershire at all. On the other hand, there is trade up the Wye and Usk and along the South Wales coast; and there is a large concentration of finds from Co. Down and Co. Antrim, with scattered finds from farther south, in eastern Eire (Waterman 1960: 160 fig 59, 159; additional South Wales finds in J.K. Knight 1970: 89, 103 n.27). Wherever these jugs were manufactured, their Welsh and Irish distribution strongly suggests they formed part of Bristol's trade with these areas.)

It seems unlikely that the virtual lack of the yellow slipware in Wales indicates a lack of Bristol trading connections with South Wales at this time. The lack of finds may merely indicate lack of recognition of the material or lack of excavations on sites of this period - certainly Willan (1938: 100, 1967 ed) notes Bristol sending in the 1680s and into the C18 earthenware to Gloucester, South Wales, the South-West and as far away as Southampton. Perhaps more likely, the rise of local potteries had reduced the sphere of Bristol influence in this particular line since medieval times. A number of South Wales post-medieval potteries besides the famous Swansea and Nantgarw "artist potteries" are known (Talbot 1969: 132-9), though much work remains to be done on them, their products, and their trade. The first industrial production of pottery in the Swansea area was not until 1764, though there is a tradition of delftware production prior to that date (Nance 1942: 8).

Certainly Bristol capitalists seem to have concentrated their C18 investment in South Wales (Minchinton 1954: 82-5), and Bristol contacts occurred at much more mundane levels: as is discussed in detail later, John Frederick Bryant jr had in the 1780s twice tried to set up a market for his products at Carmarthen and had, also unsuccessfully, tried to obtain a derelict pipe-manufacturing premises in Swansea; and in the early C19 Bristol pipemakers were more successful, apparently starting, or perhaps restarting, the industry in Swansea and also working in Cardiff.

One feature common to the distribution patterns of both the medieval and C17-C18 ceramics is the apparently total lack of penetration (if Lundy is excluded) along the southern shore of the Bristol Channel. Here too, it may be suspected that local pottery industries, such as that at Nether Stowey in north Somerset for example (Coleman-Smith and Pearson 1971: 6-8), had established their own markets - certainly a number of medieval Somerset potteries are known from documentary evidence (le Patrouel 1969: 135 fig 25). Further, the ancestry of the North Devon pottery industry, already noted as exporting to Ireland by 1601, may well lie in the medieval period: there was a Crock Street in Barnstaple Oy the early C14 (Strong 1891: 390; cf Miles and Saunders 1971: 17, 18, 19). As regards trade in the South-West, certainly as late as the 1890s the famous North Devon clay ovens, remains of one of which were found at C17 Jamestown (Cotter 1958: 74, pl 38), were being sold in north Cornish fishing villages (Strong 1891: 392; cf Hall 1890: 321; Charbonnier 1906: 257; Holland 1958: 15-16, pl 1 caption). Rather similar sgrafitto wares to those made in North Devon were being made from the C17 to the present century at the villages of Crock Street and Donyatt, SW of Ilminster in the extreme south of Somerset, one fragment occurring in a ca.1765 context at Williamsburg, Virginia; potters were already known at Donyatt in medieval times, and a Bideford potter and his family settled there in 1691 (Charbonnier 1906: 257; Honey 1952: 151, 184; Radford and Hallam 1953: 81-8; I. Noël Hume 1963: 286 and 1970c: 105; le Patrouel *loc. cit.*; Coleman-Smith and Pearson 1971: 1-6). Local pottery industries often continued for many centuries - le Patrouel notes an area of Essex where potting is known from the C13 to C19 and another in Somerset (Pill, now on the outskirts of Bristol) where the trade is noted from the C13 to C18 (le Patrouel 1969: 124 table VI).

In summary therefore one can say that the various strands of very diverse evidence all agree in suggesting that Bristol's main contacts were with the Severn basin and the north shore of the Bristol Channel. The South-West - Devon and Cornwall - appears to have had much less contact as do points east, even as close as Wiltshire.

To determine the extent of trade in Bristol pipes within this area of contact, a survey of museum pipe collections was undertaken. In all 14 counties were chosen to cover the area.[49] They were:

Cornwall
Devon
Dorset
Somerset
Wiltshire
Gloucestershire
Warwickshire
Worcestershire
Herefordshire
Brecknockshire
Monmouthshire
Glamorgan
Carmarthenshire
Pembrokeshire

The area is enclosed with a continuous line in FIGS 152-54 and 159.

To choose a geographical area first and then study distribution inevitably prejudices the latter, but as this is the first detailed study of Bristol pipe material attempted it seemed better to concentrate the search for identifiable material in the most likely area, making sure at the same time that the area chosen was liberally-enough defined to extend somewhat beyond the most likely region. In the event, Adrian Oswald most generously made available from his unpublished notes finds of Bristol material beyond the area defined. To extend the area of detailed study would have involved studying other pipe industries: in particular, Shropshire could on previous evidence have been included, but to do so would have involved studying the Broseley pipe industry, a whole topic in itself. Indeed, work by A. Peacey of Stroud (to whom I am indebted for information in advance of publication) indicates the Wiltshire and Broseley industries penetrated Gloucestershire at different times; and as this study will show later (pp688-91), Broseley influence was spreading down the Severn valley even to Bristol and as far as South Wales on one side and western Oxfordshire on the other and Herefordshire influence was spreading into South Wales from the last quarter of the C17 onwards. It was decided, however, to include among museums to be visited ones at Bournemouth, Christchurch, Southampton, and Winchester in Hampshire to the SE of the area; that at Filkins, Oxfordshire, to the east; and that at Llandrindod Wells, Radnor, to the NW.

In all, 105 museums in the 14 counties and 11 in the additional centres included were considered possible places to have collections of clay pipes, and all were sent a circular letter asking whether in fact they had pipes. Out of this 116, seventy-seven had. A further two, those at Portland and Lyme Regis, both in Dorset, proved impossible to contact either by recorded-delivery letter or by telephone. Of these 77 only one, that at Sudeley Castle, Gloucestershire, declined to co-operate in the survey, leaving a total of 76. Private collections were not sought out, but one in South Devon and another in Herefordshire were examined as a result of contacts made while visiting museums there and two collections in public houses, one in Bristol and the other in north Somerset, and one at Courage's Brewery in Bristol were similarly visited. D.R. Atkinson's study of material found in and about Marlborough (Atkinson 1965c, rev ed 1969b; 1973) enabled this material to be added to that considered. Through the kindness of Mr Jeremy Knight, I was able to inspect material from Raglan Castle in the possession of the Department of the Environment's Cardiff office. The material in the collections in the Department of Medieval and Later Antiquities of the British Museum was also examined - this included the Bragge Collection (itself containing the R. Thursfield, Bernhard Smith, Bousefield, and Southorn Collections; cf T.H. Thursfield 1907: 161-2) and those pipes used by Pritchard to illustrate his 1923 paper on Bristol pipes. The presence of this part of Pritchard Collection at the British Museum does not appear to have been hitherto noted. The final total of museums or similar repositories whose material was examined therefore came to 84 (listed in Appendix VIII).

(2) Distribution

The use of museum collections to obtain an idea of extent of trade in items has certain limitations. Quality of collections vary considerably from museum to museum, small non-professionally run museums being by no means necessarily the worst offenders. Interest in only certain types of material acquired or accepted probably accounts for some large museums having only a very limited amount of pipe material; conversely a small museum such as Stroud can have a curator interested enough to make plaster casts of maker's marks from all pipe material which comes his way but does not get donated to the museum.

Many museums do not have all their pipes - or sometimes any of them - provenanced, and while it is tempting to assume that items as ubiquitous and unspectacular as clay tobacco-pipe fragments in collections must be local finds, evidence indicates this need not be the case: even in small museums there are pipes which for various reasons, such as perhaps a local resident finding material while away on holiday, are given to museums far away from their find-spot. The Art Gallery and Museum at Merthyr Tydfil, for example, has an unmarked pipe of the West Country "chinned" type datable to the second half of the C17 which is said to have been found "in the grounds of Exeter Castle", while the City Museum and Art Gallery at Worcester has a typical Oswald type 10 South-West style pipe from Newbridge in South Devon and the County Museum at Carmarthen has four pipes of the mid-C17 - one inscribed with the date 1644 - from Wolvesey Castle at Winchester. An extreme example of a non-local pipe finding its way into a small museum is one from Edinburgh Castle in Devizes Museum - the pipe is later C17 in date and bears the triple-towered castle mark which is the coat of arms of

Edinburgh and occurs on other pipes from Edinburgh and SE Scotland (see p.349 above). In the case of unprovenanced material in county museums or other museums consciously serving a wide area the problem obviously becomes greater; both the Somerset County Museum at Taunton and the City Museum and Art Gallery at Gloucester have material found in Bristol. In citing museum material in this section therefore (or at least material actually seen by this writer), the difference between material at a museum and that from a site will be kept as clear as possible by using the words "at" and "from" regularly as in the contexts above.

Unfortunately, the planned visits to museums had to be interrupted for a period of more than two years, which caused inevitable breaks in continuity of thought and familiarity with material. Further, the need to examine so many collections which did have marked pipe material resulted in it being generally impossible to spend as much time as one would have wished ferreting about in these collections and finding mislaid material. In addition, as this part of the work proceeded it became apparent that some museums written which had stated they had no marked pipe material did have, or at least had had when certain colleagues had visited them within the previous few years. Thus comparisons between material seen by this writer and material listed in some articles on pipe collections or in excavation reports listing pipes before their deposition in a museum have indicated discrepancies. It is hoped, however, that there are few omissions of importance; as will be shown in the following pages, the pattern of trade revealed by this study seems quite clear.

It is worth stressing at this point that the overview of Bristol material in the various museums visited very definitely does not take the place of publications dealing in detail with local collections of pipes - more detail than it was possible for this writer to give. A number of papers dealing with museum and other collections within the area taken by this writer have appeared in recent years; Atkinson's papers on pipes from the Marlborough area (1965c, rev ed 1969b; 1973), in the Salisbury and South Wiltshire Museum at Salisbury and from other local Salisbury finds (1971; 1973); Oswald's on pipes in the City Museum and Art Gallery at Plymouth (1970a); Owen's on pipes from the Roman Bath Museum at Bath (1967); and E. Watkins's on pipes in the Dorset County Museum at Dorchester (1966). More of this type of paper are needed for museums large and small all over the country, and indeed for many artefacts other than clay pipes. Ironic as it may seem in a work of this size to say that the extensive collections in the Bristol City Museums have still to be published in a manner similar to, say, Atkinson's coverage of Marlborough and Salisbury pipes, it is a fact that such a study would by no means totally repeat the work presented here.

In identifying Bristol pipe material one is greatly helped by the fact that a relatively high proportion of Bristol makers between the late C17 and sometime in the mid-C18, and in some isolated instances in the middle and second half of the C17, most sportingly identified their products by putting their name on them. In the C19 the widespread custom of marking one's products with one's name and place of work was known in Bristol, though only a few Bristol products have been identified in this way. From the C17 and C18 marked material it is possible to identify certain pipe shapes or styles of marking as being predominantly or wholly Bristol, and from this one can with some confidence suggest similar pipe types marked only with the maker's initials may be products of other Bristol pipemakers. This latter can be strengthened by other evidence, such as the pipes being kiln wasters or associated with kiln material which would indicate local production, or simply by the frequent occurence of consistently similar material or maker's marks within the city particularly when the marks can be equated with the initials of a known maker of the correct period.

This last may seem a dubious method of finding convincing identifications, but in a city with as major an industry as Bristol's it is reasonable to suppose a definite majority of pipes found can be considered Bristol-made; and the Bristol pipemakers' guild charter of 1652 did forbid the sale within the city of pipes not made by members of the guild (Appendix VI). Regardless of how effective this latter stricture ever was - as noted in Section II(d) above, guild control over trades became an unenforceable anachronism in the C18 - it is a fact that relatively little definitely non-Bristol material was found by this writer in the Bristol City Museum or Blaise Castle Folk Museum collections.

However, in deciding which pipes can be identified with Bristol makers, this writer has deliberately taken a minimal view,[50] restricting such identifications to ones which he feels are certain or virtually so. This is primarily to provide a conservative survey to replace the only previous study of Bristol pipes, that by Pritchard as long ago as 1923.

Pritchard's study, while still useful, contains a number of errors and omissions, and is restricted to the C17. For example, *Edward Battle* A 1651 F 1660 fl 1669 did not become free in 1650 (p.180); *Timothy Ricketts* F 1669 is consistently referred to (pp181, 182 twice, 183) as Timothy Risbett; *Robert Tippet I* F 1660 fl 1680 D by 1687 is listed (p.181) as an apprentice of Llewellin Evans becoming free 1671, which is wrong on both counts; freedom dates quoted do not take into account that until 1752 the year began on 25 March, so that from time to time Pritchard gives a date a year too early. Only the freedom rolls appear to have been consulted, with the result that those pipemakers active prior to the first one recorded in the freedom rolls, in 1640, and cited by Pritchard (p.174) as the first Bristol pipemaker, *William Lewis* fl 1639/40 F 1640 prob. D by 1652, have been ignored and the first reference to pipemaking in Bristol delayed 21 years (see Section I above); another result of the non-use of the apprentice rolls is that Pritchard guesses at apprenticeship dates by subtracting the standard apprenticeship term of seven years from the date of freedom, a process which only rarely gives the correct date and ignores the fact that not all freemen pipemakers did serve an apprenticeship (see above *passim*, esp. Sections II(b), III, and IV).

In addition, a number of Pritchard's identifications are, as he himself indicates, only possibilities, and some are rather speculative. For example, he suggests (p.181) that examples of impressed marks incorporating the letters WC, two with decorative motifs above and below, the other plain, may belong to *William Cherrington sr* F 1660 fl 1679 prob. fl 1696 while two other sets of marks incorporating the same letters, raised, may be the mark of *William Cissell* F 1660/1 - not 1660 as Pritchard says - fl 1669/70, his reasoning being that the mark he suggests is Cherrington's also occurs on larger pipes which he suggests are the products of Cherrington's son *William* jr F 1690. This is a reasonable enough speculation on the evidence used by Pritchard, but he did not know that William sr was working at least as late as 1679 and probably as late as 1696 and that modern knowledge of pipe typology would date the "larger" examples he notes and illustrates (pl VI, 76 and 77) to the 1670s and certainly before the 1690s; so that they could perfectly possibly have been produced by Cherrington sr and would almost certainly not have been produced by his son. With Cissell also known to be working at least as late as 1670, there is really no way of knowing which of these two groups of marking with the letters WC belonged to which of these two makers.

Further, as Pritchard used only the freedom rolls to identify makers, he was unaware of a third maker with these initials, William Carter, who is recorded taking an apprentice in 1641 and was dead by 1647 when a daughter was apprenticed to a Bristol cordwainer. Two marks with these initials, one plain and one with decorative motifs and both of the type identified by Pritchard with Cherrington, occur in a deposit at St Nicholas's Almshouses in Bristol archaeologically and historically datable to 1652-56 (K.J. Barton 1965: 210 fig 72, 212 and passim) and associated with other pipes - Berryman, Edward Lewis, Philip Edwards sr, and probably Flower Hunt examples - which would certainly fit that context: unless they are intrusive these WC-marked pipes cannot be products of either Cherrington sr (F 1660) or Cissell (F 1660/1), which appears to leave only Carter as the maker, an identification which if correct presents a real problem as to the identification of the later C17 marks Pritchard attributed to Cherrington jr.

Pritchard also suggests that Jeffry Hunt, whose pipes are common not only in Bristol but all over the West Country, was probably a Bristol maker related to John Hunt F 1651 fl 1653, and Flower Hunt F 1651 fl 1670 D by 1672, though he admits Jeffry does not appear in the freedom rolls (pp178, 177). In fact the elusive Jeffry, whose pipes are at least as common and widespread as any of the other Hunts, has yet to be identified; but it is virtually certain he did not work in Bristol, and Pritchard's tentative identification of him in "the old rate book" of Bristol (p.178) is a misreading of his source, which incidentally he does not cite (this and Jeffry Hunt are discussed below).

These and other reservations about Pritchard's identifications suggest it would be best to restrict this survey of the extent of distribution of Bristol pipes in England, and the survey in the following section of distribution of Bristol pipes abroad, to material which can generally either be regarded as certainly identified or can be identified to this writer's satisfaction. Thus while bowls with the marking ascribed by Pritchard to William Cherrington sr (above) occur at Weston-super-Mare and Hereford and from Caerleon (in the National Museum of Wales, see also J.M. Lewis 1967: 115-6) and can be confidently ascribed to a Bristol maker on grounds of appearance from Bristol sites and on shape, they are not included in the material discussed here because their identification as to maker is not certain. In the case of bowls with maker's initials only, it has been difficult to be absolutely consistent as to when an identification has been decided as certain enough to warrant inclusion of these bowls here - it seems almost certain that bowls of ca.1650-ca.1670 forms with the initials FH on their heel are products of Flower Hunt, for example, though pipes ascribed here to that maker have been restricted to those actually bearing his name, and other initial-marked bowls omitted here probably have as much right to have been included as those which actually have been. Basically, however, identifications based on initials, even if the maker with these initials is the only one whose dates fit the bowl shape or floruit of marking style, have been minimized. Another reason for restricting positive identification of Bristol-made material within fairly rigorous bounds is that while there are what appear to be distinctively Bristol bowl shapes, two of the most famous which are frequently called Bristol shapes, that of the mid-C17 as used by members of the Hunt family (the "chinned" style) and that from the late C18 onwards best known from the products of makers such as the Tippet family, are not confined solely to Bristol makers either in shapes or in marking, but belong to a more general West Country pattern (this is discussed in more detail below). The occurence of these styles in various collections, therefore, is not proof of specifically Bristol trade, and again it has been considered better to generally omit reference to otherwise unidentified finds of this material. While this may reduce considerably the amount of possible Bristol material which could be added to distribution maps it seems unlikely that the omission of this material would significantly alter the distribution, and its omission has the advantage of reducing discussion to reasonable certainties; as noted above, a clear pattern of trade, both at home and abroad, is seen to emerge from this study and that in the following section, suggesting the substantial accuracy of this approach.

The earliest Bristol pipemaker whose products have been found is in fact the first recorded Bristol pipemaker, Richard Berryman (fl 1619-52). He appears to have had a wide market, for his pipes occur in collections at Bath, Devizes, Gloucester, Hereford (from excavations at the Castle Green there), Monmouth, Abergavenny, Cardiff (three from excavations at Caerleon near Newport, see J.M. Lewis 1967: 115-6), Taunton (from Cannington NW of Bridgwater), and Plymouth (two from excavations near the old harbour of the city), as well as from Raglan Castle in Monmouthshire where three were found during Department of the Environment work (distribution in FIG 153). Almost as early, and almost as widespread, are the products of the Edward Lewis A 1624 fl 1631-40/1 prob. D by 1652, which occur in collections at Cirencester (two examples), Stroud (from Leonard Stanley west of Stroud), Gloucester (two specimens, one known to be from Gloucester), Worcester (at least five specimens; Oswald 1962: 48, fig 5,1 notes an example from Worcester), Abergavenny (six specimens; Radcliffe and Knight 1974: 101, 100 fig 16,18-19 note three), St Fagans (from St Fagans itself), and Taunton (at least 17 specimens from Downside; Oswald in litt. 1 December 1970 notes an example from Downside Abbey[51]), as well as from Montgomery Castle (in a pre-1649 context, noted in Radcliffe and Knight 1974: 101) and from Marlborough (FIG 153). Berryman and Edward Lewis pipes occur in the 1652-56 deposit at St Nicholas's Almshouses, along with pipes of Philip Edwards sr (see below) and examples probably belonging to Flower Hunt (see below) and possibly to William Carter (see above) (K.J. Barton 1965: 210 fig 72, 212), an association compatible with the other evidence for dating.

Chronologically, the next-earliest Bristol pipemakers whose products have been found traded outside Bristol are Philip Edwards sr who became free 1649/50 and the two Hunts, John and Flower, who became free 1651. A discussion of the Hunts leads conveniently to a broader discussion of the whole Hunt family of pipemakers, other members of which (e.g. Jeffry noted above) have sometimes been claimed as also being Bristolians, so for this reason, and also because it is not always easy to separate Edwards's products from those of his son Philip jr, a discussion of Edwards's material follows an examination of the Hunt family.

John Hunt, as indicated above, became free 1651; the only other reference to him is in 1653, when he and his wife Jane took an apprentice to whom no further reference appears. As noted in Section I above, this may indicate that Hunt died fairly soon after starting business in Bristol, though the widespread finds of pipes with IOHN/HVNT (the N and T of Hunt diphthonged) or IOH/N·HV/NT on their heel and certainly datable to the mid-C17 suggests he must have been a busy maker when alive. Pipes with these marks occur in collections at Bath (from the city itself), Devizes (two examples from Marlborough), Malmesbury (two examples), Abergavenny, Bideford, Weston-super-Mare, Frome (from Beckington 3 miles NE of Frome), and Salisbury, as well as appearing in Marlborough collections. They have also been recorded from as far away as London (T.G.H. Price 1900: 234 and fig 15; Atkinson 1962a: 184, 183 fig 1,13 and b)[52] and Great Meols in Cheshire (noted in G.C. Spence 1942: 55; cf H.E. Smith 1860: 215, pl VIII 2nd from top left). The W.J.B. Smith pipe collection (latterly part of the Bragge Collection, now in the British Museum), which came "mostly from the Midland Counties" and certainly had an appreciable quantity of Broseley material, included both John and Thomas Hunt pipes (W.J.B. Smith 1878: 31), suggesting they may have been found in the Midlands. Oswald (*in litt.* 1 December 1970) also notes John Hunt pipes at Taunton, though none was noted by this writer.

Flower Hunt also became free 1651; he certainly continued working in Bristol, and to judge by the regularity with which he took apprentices (Section I above) was an industrious pipemaker. He was still working in 1670 but had died by 1672; his wife Christian continued his business and was still working in 1693, though she may have been dead by 1696. Four sons were all trained as pipemakers:

Thomas; A 1672
Richard; A 1677, app. F by 1693, D by 1694
John; date of apprenticeship unknown, F 1689)
) one fl 1716/7
another John; A 1685/6, F 1694   )

All four were apprenticed to their widowed mother. Curiously for a man with such a going concern, Flower Hunt's pipes have been found beyond Bristol only at St Fagans (Oswald *in litt.* 1 December 1970; not seen by this writer), though there is also an example known from Ireland (see following section on trade abroad).

As noted in Section I above, John and Flower Hunt must have been fairly well-to-do as well as interested in prospects of expanded business to move from wherever they had been working previously to Bristol, for each paid a

£5 "fine" on becoming a freeman in addition to the normal fee of 3s4d; where they came from, however, does not appear in any documentary source. Several other pipemakers connected with the founding of the Bristol guild in 1652 paid £2, but no others paid £5, which suggests the Hunts - whom one supposes to have been brothers, though there is no actual evidence to support this - may have been key members in the formation of the guild, brought in for their skill and experience from some place already known for its pipemaking. However, the identification of Hunt pipemakers is much complicated by a positive excess of makers with this surname working in the West Country in the second half of the C17 and about whom very little is known either as to dates or places of working. In addition to John and Flower there is at least one Jeffry Hunt, whose place or places of work remain uncertain and whose identifiction is unknown despite the frequency with which pipes heel-marked in a variety of ways with his name occur and the widespread nature of their distribution in the West Country. They occur as far afield as Southampton, Wimborne Minster, and Dorchester in the south, Gloucester and Oxford (Oswald 1970b: 244 and pl 211 btm rt) in the north, Taunton, Bridgwater (Atkinson 1972c: 157), and St Fagans in the west, and come from Marlborough in the east. Jeffry Hunt bowls cover typologically the whole of the second half of the C17; the latest is one at Wells datable to the decades on either side of 1700 with IEF/HVNT (the N and T of Hunt dipthonged) impressed on the top of the stem near the bowl and at right angles to the axis of the stem, a form of marking characteristic of Wiltshire and Hampshire makers which does not appear until the 1680s when it is associated with the same type of bowl as that here (Atkinson 1965c: 87-8 and passim, rev ed 1969b; 1971: 181 and passim). A stem-fragment from near Salisbury with what appears to be the name Jeffry Hunt (Atkinson in litt. 31 December 1971) is, if correctly identified, further proof that Jeffry, or at any rate a Jeffry, was making pipes as late as the end of the C17.

Atkinson convincingly suggests (1972c: 159) that latterly Jeffry probably worked in Devizes, in which area later-style Jeffry Hunt pipes are concentrated; but his other suggestion, that another Jeffry, father of the Devizes Jeffry, made the earlier pipes in Bristol and was connected with Pritchard's suggested identification of Jeffry Hunt (Pritchard 1923: 178), seems unlikely to this writer. It is more likely the earlier Jeffry, or the Devizes Jeffry at an earlier stage in career, worked in some other centre with an as-yet unstudied pipe industry: there is evidence small centres could have an industry with widespread trade.

One such example is provided by pipes datable to the second half of the C17 marked GEO/RGE/BVT on their heel which occur at Weston-super-Mare (two examples), Taunton (two examples - one from Glastonbury Abbey), Shaftesbury, and Birmingham (from Downside Abbey), as well as from Cheddar and Glastonbury Tor (Oswald 1971: 54), suggesting a reasonably widespread business. In fact But (or Butt) worked in the north Somerset hamlet of Stratton on the Fosse ca.5 miles NE of Shepton Mallet, and the only reason we know this is because he happened to apprentice his son Joseph to Edward Randall sr, a Bristol pipemaker, in 1670 (see Appendix IX) and his trade was recorded at that time. A pipe marked WIL/IAM/BVT at Devizes and four at Honiton and one at Shaftesbury marked RIC/HARD/BVT suggest several of the family may have been in business, but as yet nothing is known about them or where they worked (Joseph took his freedom in Bristol only in 1704, and nothing further is known about him). Again, there was clearly an important industry in the second half of the C17 at Chard in the extreme south of Somerset, for a pipe marked GEO/WEBB/IN/CHARD is at Taunton, four others marked GE/ORGE/WEB are also at Taunton (two from Taunton itself, one from Chard, and one from Cannington near Bridgwater in west Somerset), and and another marked GE/ORGE/WEB is at Dorchester (from that town). Examples marked George or Charles Webb and made in Chard were found at Donyatt ca.4 miles north of Chard (Coleman-Smith and Pearson 1971: 3) and pipes marked "George Webb in Chard" were found at Nether Stowey ca.9 miles west of Bridgwater and in west Somerset (Coleman-Smith and Pearson 1971: 8). A fragment heel-marked E+C/INCH/ARD at Taunton indicates the Webbs were not the only pipemakers in Chard, but so far nothing is known about the Chard industry beyond these pipes. Taunton itself must certainly have had a major industry at least in the earlier C18 to judge by the number of pipes (including ones made by EC, who perhaps came from Chard) with makers' names or initials and Taunton on them, but again no work has been done on the industry there.

There are still other pipemakers called Hunt working in the West Country in the second half of the C17, however. There is an otherwise unknown William Hunt, a pipe of whose, typologically dating to about the 1670s, is at Taunton. There is also at least one Thomas Hunt producing pipes typologically datable to the whole of the second half of the C17 and whose variously-marked pipes occur in the West Country over a wide area - at Bideford in the west, at Cirencester in the north, at Taunton and from Salisbury in the south, and from Marlborough in the east - and from as far afield as London (T.G.H. Price 1900: 235; Atkinson 1962b: 184, 183 fig 1,44), Cambridge - if the typical West Country chinned bowl pipe from King's College described by T.McK. Hughes (1900: fig 3) as being marked "Thomas Bun" on the heel is in fact a misreading of Thomas Hunt[53] - Durham (Parsons 1964: 238), and possibly from the Midlands (W.J.B. Smith 1878: 31 - see above, discussion of John Hunt finds).

A Thomas Hunt is recorded working at Marlborough in 1667 and is still there in 1696; the earliest pipes marked Thomas Hunt are dated by Atkinson to ca.1640, but Thomas Hunt pipes do not appear in Marlborough before ca.1660, suggesting either that Thomas Hunt moved from elsewhere to Marlborough ca.1660 or else that there was another and earlier Thomas Hunt working elsewhere in the West Country. Even the Marlborough Thomas Hunt, however, cannot be the Thomas Hunt son of Flower Hunt of Bristol noted above, for the latter was not apprenticed until 1672. A possible connection between Thomas Hunt and John Hunt, however, may lie in the former's use of his name in script as a mark (Atkinson 1962a: 183 fig 1,14; 1965c: 89 fig 1,7, rev ed 1969b; 1973: 155), for Oswald (in litt. 1 December 1970) notes John Hunt chinned bowls from London with that name in script. The Thomas Hunt script mark, incidentally, is an accurate copy of his signature as it appears on an apprentice indenture at Marlborough (Atkinson in litt. 29 August 1971).

As a final note of complexity, three Hunts - John, Thomas, and Richard - sign the ca.1696 oath of allegiance to William of Orange presented by the London pipemakers' guild, John and Thomas signing one below the other

(R.H. Cooper in litt. 19 December 1972). All sign as journeymen, so that the John Hunt- and Thomas Hunt-marked pipes noted from London (above and p.598) are unlikely to be products of the John and Thomas Hunt listed unless they subsequently became masters there, for which there is no evidence. The fact that John and Thomas Hunt sign the document together suggests they may have been relatives (the signatures on the document are not in alphabetical order), and it is tempting to suggest they could have been respectively one of the two John Hunts both sons of Flower Hunt (one F 1689, the other F 1694, one still in Bristol in 1716/7) and Thomas Hunt their brother A 1672 and noted above. This, however, is entirely speculative. (Curiously, the two John Hunts and Thomas Hunt did have a brother Richard, also a pipemaker, as noted on p.598 above, but in this case it is certain the Richard Hunt in London is not the Bristol Richard Hunt, for the latter had died by October 1694 and though his freedom date has not been found - he was apprenticed in 1677 to his mother Christian Hunt for seven years - he probably worked in Bristol all his life, he and his wife certainly taking an apprentice there in August 1693.)

This discursive account of the various Hunt pipemakers working in the second half of the C17 in the West Country relates to an investigation of the Bristol Hunts and their origins. The most important point is that whatever relationship there exists among these makers it cannot be purely one of descent. We know that John and Flower Hunt in Bristol both arrived there in 1651 and we know that a Jeffry and a Thomas Hunt were producing bowls of the same pattern and the same sort of maker's mark at approximately the same date. As no Hunt products datable to earlier than approximately the middle of the C17 appear to exist it is difficult to suggest that one of these four was the father of the others; four brothers seems more likely. As already noted, John and Flower appear to have come to Bristol from a place where they were already established; one might hypothesize that Jeffry and Thomas were brothers of the other two who continued working in the original Hunt business. Jeffry and Thomas may latterly have moved to Devizes and Marlborough respectively, or they may have had sons of their own name who moved there, but in any event the relationship of Jeffry and Thomas to the Bristol Hunts and their families must have been collateral. William Hunt could be a son of Jeffry or Thomas; there is no evidence he was a son of either of the Bristol Hunts [but see now Preface].

A clue to the place, or at least the area, of origin of the Hunts may lie in the distinctive bulbous or "chinned" bowls they produced in the middle and the third quarter of the C17. This style is variously called Bristol style, or West Country style (Atkinson 1971: 177), or Bristol-Wiltshire style (Atkinson 1970a: 208); and Atkinson (1965c: 177-8, rev ed 1969b; 1970c: 208; 1971: 177) has suggested the occurrence of bowls of this shape in Wiltshire and Hampshire reflects the spread outwards from Bristol-trained makers, journeymen and younger sons of established pipemaking families. In this writer's opinion, however, it is less specifically Bristol than is generally claimed. Of those Bristol makers whose products can be positively identified, only the two Hunts appear to have consistently manufactured pipes in this style, whereas there are a number of bowl-styles made by their Bristol contemporaries which appear to be *specifically* Bristol in style.

None of the Edward Lewis pipes and only one Richard Berryman pipe (fig *k*; which, however, could easily be late) have any similarity to the Hunts' "chinned" style; and early Philip Edwards sr pipes (e.g. fig *c*), which presumably date to the 1650s, are similar to some Berryman and Lewis pipes (e.g. Berryman fig *f* and Lewis figs *b* and *f*) (figure references given in this manner - a lower-case letter italicized (underlined) - refer to illustrations in Appendix IX under the relevant maker's entry). As already noted in Section I above, there is a possibility that Berryman was a Londoner. The evidence is by no means conclusive, but there is an inevitable tendency to look to London when considering pipemakers appearing in the provinces as early as the second decade of the C17 (cf Atkinson and Oswald 1969: 201 and 203, 204), as here; and Berryman's bowl forms and those presumably copied by Lewis and Edwards are similar to known London forms of the first half of the C17 (e.g. Atkinson and Oswald 1969: 178 fig 1,4-5 and 10, 184 fig 4 *passim*). Where Edwards came from is unknown - he was probably a pipemaker before coming to Bristol - but Lewis was already a second-generation Bristol pipemaker, his father being the Samuel Lewis fl 1624-26 who also did blacksmithing. While it may be too early to talk of these pipes being a Bristol "type", therefore, one can suggest that Berryman's London-style moulds were being used to make Bristol pipes which as late as the 1640s and 1650s (Berryman was still alive in 1652) were quite different from the "chinned" Hunt style of pipe.

Other Berryman and Lewis bowl shapes (Berryman fig *g* and Lewis figs *a* and *h*) are of a pattern used by Thomas Monkes fl 1656 and 1669/70 (fig *d*) and in modified form by one or other of the Philip Edwardses - probably the elder (fig *m*) - by Richard Nunney F 1655 fl 1696 D by 1713 (fig *b*), and by Robert Tippet I F 1660 fl 1680 D by 1687 (fig *a*). A later and enlarged version is represented by other pipes belonging to Monkes (figs *c* and *e*), to a member of the Edward Lewis family (poss. the Edward F 1678/9 fl 1722 grandson of the Edward above; figs *n* and *o*), to one or both of the Philip Edwardses (figs *i* and *j*; Philip jr was apprenticed 1668/9, became free 1680/1, and was still alive 1696), and to Richard Nunney (e.g. Pritchard 1923: pl V,37-37a, p.180 - figs *d* and *e* here; Atkinson 1965a: 251 fig 5,77 and 256 additional note). This too suggests a Bristol type evolving from about the 1640s; the large version mentioned in the preceding sentence, which is probably datable to the 1670s, is a definite and characteristic shape used by other Bristol makers, as for example those attributed by Pritchard to William Cherrington jr (1923: pl VI,76-77, p.184; the attribution to Cherrington *jr* is certainly incorrect, the bowl being ca.20 years earlier than his freedom date of 1690, see above).

Two other distinctive Bristol bowl shapes, both also probably datable to the 1670s, appear to have been restricted virtually to the three Evanses who worked in the second half of the C17. One of these shapes was produced by Llewellin Evans (prob. A 1654, F 1661, fl 1684, D by 1688/9; figs *d* and *e*) and one or other - or perhaps both - of the William Evanses (one A 1653 F 1660, the other A 1660 F 1667, both fl 1682 and at least one fl 1697, the later William poss. a brother of Llewellin; fig *b*). The other bowl shape appears to be a variant of Oswald's type 7 and to have been restricted to one or both of the William Evanses (figs c and d), though a similar shape also appears attributable to James Fox (prob. A 1639/40, fl 1651, F 1654, fl 1668/9) - typologically, however, these latter should be datable to ten or more years after the last certain date - 1668/9 - known for Fox (see Appendix IX; also section below on trade abroad). What seems to be a heeled version of the style is also used by Llewellin Evans, though unfortunately the versions seen by this writer are those illustrated in the Port Royal reports (Oswald 1968; 1969), where many of the drawings submitted to Oswald and reproduced in the reports are too inaccurate to be reproduced in Appendix IX here.

All this is not to say that the Hunt "chinned" style was shunned by other Bristol makers. It was used, among the other shapes noted above, by Philip Edwards sr (figs d-f; also Pritchard 1923: pl IV,15-17, p.176), by Richard Nunney (fig a), and by Francis Edwards I (fig a); and its influence on later Bristol pipes is unmistakable, for example on products of Richard Nunney (figs g and h), Llewellin Evans (figs b, c, f, and g), one of the William Evanses (fig a), Robert Tippet I (figs c-e and g-k), and Francis Edwards I (figs c and d). Further, as will be discussed in detail later, the Robert Tippet sequence of pipes shown in figs c-e and g-p (FIG 156) indicates the chinned style contributed to the development of the other famous Bristol and West Country pipe style, the gracefully curved bowl in the Oswald type 9 series which is so commonly found in North America because of Bristol exports there (cf also the sequence shown in Atkinson 1965c: 89 fig 1,K-P and 91 fig 2,Q-V; FIG 157 here). Indeed, the sequence discernible among the large amount of Taunton-made material in the Somerset County Museum at Taunton indicates the chinned style also contributed to the evolution of what may be called the South-West style, in Oswald's type 10 series, which was produced in the C18 at centres in the South-West such as Taunton and Barnstaple and was quite different from the type 9 style used in Bristol, Wiltshire, and Hampshire.

The point, however, is that what one sees of the chinned style in Bristol products of the second half of the C17 is a general influence rather than a complete take-over. Few of the examples of Bristol-made pipes cited above as showing this influence would be confused with the true chinned style as represented by the products of John and Flower Hunt. Further, when one removes from Pritchard's illustrations the products of Jeffry Hunt, for whom there is no evidence that he ever worked in Bristol, and the products of John and Nathaniel Howell (Pritchard 1923: pl VIII,108-10, pp186-7) for whom equally there is no evidence of their being Bristolians,[54] one reduces sharply the number of true chinned pipes attributable to Bristol makers. It seems reasonable to conclude, therefore, that the chinned type comes to Bristol from elsewhere, probably with the Hunts and presumably from Wiltshire.

If one is to look further for the origin of the chinned style, and with it perhaps a possible origin for the elusive Hunt family, one may consider the famous Gauntlett pipemaking family of Amesbury, ca.8 miles north of Salisbury, which has already been described in 3: I. The fame of this family's products was such that their mark of a gauntlet on the heel of the pipe was widely plagiarized, but the best examples seen by this writer -

which are beautifully made and finely burnished - belong to this chinned class and typologically should date to the 1640s or earlier (cf Atkinson 1965c: 86, rev ed 1969b). As indicated in 3: I, Gauntlett pipes were already famous enough in 1641 or 1642 for the family to be supplying the Marquis of Hertford, and one must suppose the business had started before 1640. Indeed, there is some evidence to suggest the family may conceivably have been making pipes as early as ca.1600 or earlier and in a form which might be an ultimate prototype of the chinned bowl (Oswald 1969c: 204 fig 3(17); Atkinson and Oswald 1969: 192, 193 fig 8,57; cf Atkinson 1973: 154).

As a hypothesis, this writer suggests that the Hunts may have been trained by, or at least had worked close enough to be influenced by, the Gauntlett family. This would explain the similarity of bowl shape, the similar high quality of workmanship and the similar beautiful polished "glazed" finish. It would also explain why John and Flower could afford a £5 fine and be regarded by the Brisol fathers as worth fining that amount, and it would explain their bringing with them moulds which produced these chinned style pipes. If at least some of the Hunts had been working on their own before ca.1650 this would explain Thomas Hunt pipes typologically datable as early as ca.1640 (Atkinson 1965c: 86, rev ed 1969b); it would also explain why there is such a wide distribution of John Hunt pipes when John Hunt may not have worked very long in Bristol (see above). The suggestion is, then, that the Hunts may have originally come from south Wiltshire.

(The suggestion that at least Jeffry Hunt came from Norton St Philip in north Somerset ca.6 miles SSE of Bath (e.g. Pritchard 1923: 178; Atkinson 1965c: 90, rev ed 1969b) originates with an anonymous letter appearing in the 10 March 1855 issue of N&Q (pp192-3) in answer to a letter of 13 January inquiring about Jeffry Hunt pipes. The contributor noted that Jeffry Hunt pipes were common in Somerset and that in Norton St Philip church there was a gravestone in the north aisle to an Edward Hunt, son of Jeffrey, dated 1656. The same writer also noted a Jeffrey Hunt appearing in 1665 in a rate book of the parish. Unfortunately Pritchard, when repeating this, does not note his source and as a result appears to indicate the 1665 reference occurs in a Bristol rate book. He then goes on to say that the "registers" show the death of a Jeffry Hunt in 1690 aged 91, but what registers is not stated - this reference is not given in the N&Q letter. Pritchard also noted that Hunt pipes had been found particularly frequently in the Pithay district of Bristol in the old rubbish pits just outside the Norman wall, and under C18 houses in Wellington St, and suggested it was here the Hunts worked, as pipes with all four Hunt names - John, Flower, Thomas, and Jeffry - had been found there (Pritchard 1923: 177). Unfortunately, Pritchard's references are confusing, for he implies that Wellington St and the Pithay are near each other, whereas the Wellington St he must have meant was a now-vanished street running west from Somerset St in the Cathay area of the city, north of the New Cut and SE of St Mary Redcliff Church - the street was in fact being cleared in 1923, the year Pritchard wrote (I am indebted to Bristol Public Libraries for information on this point). Thus Wellington St was ca.3-3/4 miles away from the Pithay and on the opposite side of the then line of the Avon and actually outside the old city boundary. The

Pithay, however, was indeed on the line of the early city wall. Whether Pritchard was suggesting the Hunts worked in the Pithay area or the Wellington St area is thus not clear.

Returning to Philip Edwardses pipes found outside Bristol, Philip Edwards sr became free 1649/50, was still alive 1668/9, but had died by 1683; his son Philip jr was apprenticed to his father 1668/9, took his freedom 1680/1, and was still alive 1696. Their pipes occur in collections at Stroud (from Arlington Court NE of Cirencester), Gloucester (from the city itself[55]), Abergavenny (three examples), St Fagans (two examples), and Taunton (the Downside district[56]), as well as from the Ross-on-Wye area (two examples) and from the Department of the Environment work at Raglan (three examples). Oswald (in litt. 1 December 1970) notes a pipe of one of the Philip Edwardses at Ludlow Museum in Shropshire (FIG 150). It is difficult to separate the products of the two Edwardses with any certainty, but the Gloucester example and one each of the Abergavenny and St Fagans examples are probably products of Philip sr; the Ross-on-Wye example and the three from Raglan Castle are too fragmentary for further identification but the remainder are probably products of Philip jr. In fact, as will be discussed in detail in Sub-section (c) below, the Raglan Castle examples are on historical grounds almost certainly the products of Philip sr. In addition, a heel-fragment from Ross-on-Wye bears the mark ED/WAR/DS: although there are a number of Edwardses pipemakers in Bristol from the mid-C17 to the first quarter of the C19 this form of marking would date the fragment to the third quarter or so of the C17, and Pritchard is probably right when he ascribes this mark to Philip sr on the shape of a whole example found in Bristol (Pritchard 1923: 176 and pl IV,17). Entirely outside this distribution pattern is a possible Philip Edwards pipe from the River Witham at Boston (P.K. Wells in litt. 26 January 1974). The bowl-shape certainly belongs to the West Country "chinned" class but the PE on the heel is encircled with dots and there are additional dots above and below the letters, and a very marked characteristic of Philip Edwards pipes is their spartan simplicity of marking. If this is a Philip Edwards product, the bowl shape would date it to Philip sr.

Pipes identifiable as products of Richard Nunney (F 1655, fl 1696, D by 1713) occur in the collections at Stroud (two examples, one from Arlington Court NE of Cirencester and one from Leonard Stanley west of Stroud), Birmingham (from near Bradford-on-Avon, Wiltshire), Cardiff (from excavations at Caerleon near Newport, see J.M. Lewis 1967: 155-6), St Fagans, and Taunton (two examples, one from Stogursey NW of Bridgwater and one from Cheddar),[57] and examples are also known from as far away as London and Nottingham (Oswald in litt. 1 December 1970; also Atkinson 1965a: 251 fig 5,77 and 256 additional note for London occurrence) (FIG 150).

The next Bristol pipemaker whose products can be identified outside Bristol is Robert Tippet I (F 1660, fl 1680, D by 1687). The only example from outside Bristol found by this writer is one at St Fagans (from Cardiff), but one from London is noted by Price 1900: 232-3, fig 11a), and Oswald (in litt. 1 December 1970) notes possible examples at Winchester and Cambridge. The Robert Tippet family was probably the most famous Bristol pipemaking family, though there is relatively little documentary evidence for them, particularly in their third generation. They built up a massive export trade with North America, their pipes being found from Newfoundland to Jamaica and in more quantity than most of the other Bristol exporters put together; this part of their business is discussed in detail in the following section, but here it may be noted that the rarity of Tippet pipes found in England and Wales (and the apparent total lack of second- and third-generation Tippet products) suggests an almost exclusive concentration on the oversea trade.

A contemporary of Robert Tippet I is Edward Battle (A 1651, F 1660, fl 1669), and a pipe bowl which is probably his is in the collections at Abergavenny (fig a). This example is of a definitely Bristol bowl form probably datable to the 1670s and noted on p.602 above as being used by such makers as Nunney, one or both of the Philip Edwardses, and whoever used the impressed initials WC; the mark is a fairly simple one, raised from a depressed background. Unfortunately, no definitely-identifiable Battle products have been found in the Bristol collections. Pritchard (1923: 180, pl V,38) illustrates one possibility, with an elaborate mark raised from a depressed background, though its shape seems rather early for Battle's dates (Pritchard erroneously says (1923: 180) Battle became free in 1650); but there is a very similar bowl in the Bristol City Museum collections (fig b) with a mark quite similar to that on the Abergavenny specimen. In the Blaise Castle Folk Museum at Bristol there is a bowl (fig c) rather similar in shape to the Abergavenny specimen but with an elaborate impressed mark. The letters EB raised from a depressed background and surmounted by a poorly-made fleur-de-lis also occur on a chinned bowl of about the mid-C17 found at Marlborough (fig d) (A.H. Macdonald 1941: pl V,e and 5). The Abergavenny example, as stated above, is definitely of a Bristol bowl shape and is, in the opinioin of this writer, probably a Battle product; whether the other specimens are is less certain, though known possible alternative makers with these initials at this time are rare, Oswald (1960a: 57) listing only one other, Edward Biggs fl 1653, of Henley-in-Arden in Warwickshire. At a guess the EB-marked pipe at Warwick (fig e) should be his.

EB-marked pipes, suggested by Oswald as Battle products (quoted in McBride, Larn, and Davis 1972a: 78 and 1972b: 139), have recently been recovered from a wreck near Mullion Cove, on the Lizard, Cornwall; unfortunately, though it is stated that a number of bowls were found, they are not illustrated, and the mark - the letters EB inside a circle (presumably on the heel, but whether impressed or raised is not stated) (McBride, Larn, and Davis 1972b: 142 fig 11) - does not parallel closely any of those noted above. On the other hand, it does closely resemble a raised EB heel-mark on a bowlless fragment from the Townsend site near Lewes in Delaware (Omwake 1963: pl 11B,3) which could be Dutch, though frustratingly both Dutch and Bristol pipes occur on the site (this material is discussed on p.669 below). The Mullion Cove ship has unfortunately not yet been identified, but a mid-C17 date seems definite, and of the two most likely identifications neither is English, one being a Genoese ship lost in 1667 and the other, more likely, a ship variously described as French, Danish, Hamburg, or Dutch carrying a French cargo which went down in 1669. The latter ship in any of its alleged nationalities would have been more likely to have had Dutch pipes on board (obviously so, if it were indeed a Dutch ship) than English, and as is discussed in more detail on pp668-72 below, the Dutch were producing EB-marked pipes by 1664 and were certainly exporting them to North America. The lack of certainty as to Battle's products is the more regretable because EB-marked pipes occur relatively frequently in North America in second-half-of-the-C17 contexts, and with the exception of a few certain and some possible Dutch examples, it has not proved possible so far to identify most of these finds as either English or Dutch, though the extensive Bristol oversea trade in pipes by this time makes it reasonable to suppose that Battle could have exported as did a number of his contemporaries (EB-marked pipes in North America are discussed on pp 668-72 below).

Another contemporary of Robert Tippet I is Llewellin Evans (prob. A 1654, F 1661, fl 1684, D by 1688/9). Like many Bristol pipemakers from about this time onwards, Llewellin Evans is much better known from his North American export trade than from his home trade, and in fact outside Bristol only one home example of his products has been recorded, a stem-fragment from Marlborough (Atkinson 1973: 151, 150 fig 1,34).

At Gloucester there is a stem-fragment with decoration of a pattern which appears to be restricted to certain Bristol makers, including Llewellin Evans. This decoration comprises a band of continuous impressed diamonds, sometimes with a raised dot inside, round the stem, bounded above and below by two dashed lines. Frequently the row of diamonds is interrupted by the initials or name of the makers using this decoration; in the case of the Gloucester example, there is no such identification, but the marking is known to have been used at most by only about half-a-dozen Bristol makers and so far as is known by no others elsewhere. These makers are:

Llewellin Evans (prob. A 1654, F 1661, fl 1684, D by 1688/9; fig d);
one or both of the William Evanses (one A 1653 F 1660, the other A 1660 F 1667, both fl 1682 and at least one fl 1697; figs g and h);
an uncertain maker, possibly (see below) John Sinderling (A 1653, F 1668, fl 1696, D by 1699 - prob. in the autumn of 1699);
probably Robert Tippet I (F 1660, fl 1680, D by 1687) - stems with this decoration and his initials are known from two sites in Virginia (see below, section on trade abroad).

Exactly the same type of decoration - a row of diamonds impressed between two pairs of dashed lines - with the initials IP is known from the Salisbury site in New Jersey and Port Royal, Jamaica (see section on trade abroad). No stems with these initials are known from Bristol, though it is difficult to believe they do not have some connection with a Bristol maker. There are a relatively large number of Bristol makers with these initials but three would fit the ca.1650-80 period suggested by the occurrence of John Fox and Llewellin Evans pipes at the Salisbury site. They are:

Jacob Prosser - A 1655, F 1662/3, fl 1680;
John Prosser - F 1673;
John Poyte sr - F 1680, fl 1715.

None of these has any known connection with the Bristol makers definitely known to have used this form of marking, however, and the attribution of these IP stems to Bristol must remain conjectural until examples are found in Bristol.

A site at Pemaquid in Maine has also produced pipes with his form of decoration and the initials RS (Mrs H. Camp *in litt.* 27 July 1966; H. Camp: 11 fig 5 fifth line): no such examples are known from Bristol, though two Bristol makers might be responsible (see below). A possible variant of the decoration may involve the use of solid lines instead of dashed ones - one such example with the letters IS is known from the same Maine site; however, the denticulated blade used to make this mark may merely have slipped. This site has also produced a stem with these lines and the initials DL, which latter do not correspond with those of any known Bristol maker.

The second William Evans is possibly a brother of Llewellin, and Llewellin probably evolved his mark from a rather similar one attributable to his master James Fox: the letters IF with the cross on either side raised from a depressed band on the top of the stem (fig *b*). This second William Evans finished his apprenticeship with Robert Tippet I, so a link can be established among these four makers who used this form of marking.[58]

Who the maker using this motif and the initials IS was is uncertain. It occurs at Bristol (on a pipe from the city) with a bowl datable on the evidence of similar bowls with known makers' names to ca.1690-1720, and there is another bowl of the same form with the same decoration on its stem except that the initials have been omitted. Unfortunately, this time-span covers parts of the working lives of at least five Bristol pipemakers with the initials IS, none of whom has any known connection with the five names noted above. The five with the initials IS are as follows (in chronological order):

John Sinderling - A 1653, F 1668, fl 1696, D by 1699 (prob. in the autumn of 1699);
James Silcocks - A 1670, F 1679/80;
Joseph Stanford sr - A 1683, F 1691, fl 1722;
John Squibb - F 1704/05, fl 1734;
James Stephens - A 1708, F 1715/6, fl 1722.

Of these, Sinderling and Squibb were certainly active pipemakers to judge by the number of apprentices they took; the others may have spent most or all of their careers as journeymen. At a guess, therefore, the maker was either Sinderling or Squibb. (As noted below when dealing with trade abroad these IS-decorated stems have been found in Rhode Island and Maine, and as is discussed at that point the context of the Rhode Island find suggests Sinderling is more likely to have been the maker.)

If the RS-marked stems are in fact Bristol-produced they presumably must have been produced by either *Robert Sheppard* (A 1660, F 1669, fl 1690) or *Richard Saunders* (A 1677, F 1685, fl 1715), the only two makers with these initials known during the second half of the C17. Saunders appears never to have taken apprentices, so possibly worked as a journeyman, in which case he is unlikely to have marked his products; Sheppard on the other hand appears to have run a business of his own. Neither appears to have had any connection with those noted above who definitely used this form of decoration as their marking.

James Fox, Llewellin Evans's master, was noted above as using a mark rather similar to those just described which was probably the inspiration for the motif used by the other makers: an example of this mark has recently been found from the Thames in London (Atkinson *in litt.* 20 May 1972). The mark attributed to Fox has not been found in Bristol collections, but has been recorded on a number of fragments from several North American sites (see below, trade abroad). Fox was probably apprenticed 1639/40; he was working by 1651 though he did not take his freedom until 1654, and is last recorded in 1668/9. This raises a problem, because when bowls have been found attached to these stems their shape suggests a 1670s or 1680s date, some ten years later than Fox's last recorded date. In fact, none of the bowls found attached to these stems in North America have had their top part surviving, which made precise dating difficult; the value of the probable Fox pipe from London is that the bowl is entire (fig a), and its shape certainly confirms the dating suggested above, if not indeed suggesting a slightly later span, say 1680s-1690s. The lack of definite references to Fox after 1668/9 when he and his wife Jane took an apprentice is therefore the more puzzling, though a list of Bristol inhabitants in 1696 does note a James and "Genett" (Janet) Fox in St Nicholas parish but with no occupation given.

As noted earlier, Atkinson (1962a: 184, 183 fig 1.13 and f) records a John Hunt pipe from London which, though it has the conventional IOH/N·HV/NT mark associated with the mid-C17 John Hunt chinned bowls, has a bowl definitely later in shape, approaching the early class 9 shape. If this is a product of the John Hunt of Bristol F 1651 fl 1653 it is appreciably later than either his dates or his other products known to this writer, and it may be a product of one or other of the two John Hunts of Bristol, both sons of Flower Hunt, who were working at the end of the C17 and into the C18. One of these became free 1689, the other was apprenticed 1685/6 and took his freedom 1694, and at least one of them was working in 1715 and possibly in 1716/7; the bowl shape depicted by Atkinson, however, is earlier than the bowl shapes (figs a and b) definitely attributable to either of these two makers, and would fit more happily a 1670s-80s context.

When studying pipes in the North-East, Parsons (1964: 238, 239 fig 2,23-28) noted West Country material appearing in the area during the period 1630-70, but in this writer's view the amount of this material is exaggerated. Of the six bowl forms Parsons claims to be from the West Country only three - nos 25, 26, and probably 27 - seem to this writer to be typical West Country forms, and the only West Country maker identified by mark by Parsons is Thomas Hunt, wrongly ascribed to Bristol instead of Marlborough. Further, the suggested date of ca.1630 for these pipes reaching the North-East seems very early. One would like to see definitely-attributable early Bristol pipes, such as Berryman or Edward Lewis products, before commiting oneself to such a date; and one would like to see definitely-identified later Bristol material before accepting Bristol trade that far in England as definite (it seems to be accepted, for example, in Belcher and Jarrett 1972: 191, 193). Nevertheless, the Thomas Hunt pipes do indicate West Country pipes reaching the North-East in the second half of the C17, and there must be some explanation in terms of trade links for Hunt pipes to occur so unexpectedly far from their place of origin: possibly North-East coal came up the Thames far enough to enter Hunt's extensive territory (see above pp894-5) and perhaps some West Country makers were persuaded to come to new opportunities in the North-East as John and Flower Hunt appear to have been persuaded to help set up the newly-organized Bristol industry in 1652 (p.901 above).

That Bristol pipes were known by reputation in the North-West (where so far virtually nothing is known about local pipemaking industries), if not actually used there, by the late C17 is suggestd by a reference in a letter of 1697/8 relating to plans to set up a pipemaking and potting industry on the Lowther estates at Whitehaven in Cumberland (quoted in Weatherill and Edwards 1972: 163). The initial attempt to produce satisfactory pipes met with indifferent success as the clay used - from a local scurce - tended to fire red, but by apparently using another local clay and overcoming in an unspecified way (perhaps by sealing the saggars or using a muffle-kiln - cf 2: VII) the effect of the coal fuel used for firing, it was triumphantly recorded on 18 January 1697/8 that "Our last kill-full burnt to a degree of whiteness nothing short of y^{e} Bristol pipes, and we think in other respects (especially in y^{t} of enduring the fire w^{n} re-burnt) to exceed them". This clearly indicates Bristol pipes were held to be of superior quality. It is possible that Bristol pipes were used at Whitehaven, which like Bristol was a port engaged in the tobacco-trade (see remarks in 4: IV); however, the reason for the attempts to produce pipes and pottery at Whitehaven was probably to have a local industry which could profit from the tobacco-trade with Virginia in which Whitehaven was involved in an increasing amount (Weatherill and Edwards 1972: 166), so the comparison of Whitehaven pipes with those of Bristol may simply have been with products known to be sold in the American colonies in large quantities from a centre specializing (see below, trade abroad) in exporting pipes there.

From the second half of the C17 onwards the number of identifiable Bristol pipes found in England declines, in sharp contrast to the number found abroad in the later C17 and earlier C18 and described in the following Sub-section. The pipes of the Philip Edwardses, of Richard Nunney, of Robert Tippet I, and the examples probably belonging to Edward Battle and to the Evanses all noted above date to the period ca.1650-80; after that, very little Bristol material occurs in England outside Bristol itself until the C19, despite the fact that the period ca.1690-1740 saw the height of the Bristol pipemaking industry.

Scattered material representing several makers working in Bristol in the early C18 does occur, however. A bowl with the cartouche of Isaac Evans (son of one of the William Evanses noted above, listed with father 1696, F 1698, fl 1700/1) occurs at Gloucester. This example is unusual in that the bowl, which is of the gracefully-curved Oswald type 9 style, is criss-crossed with denticulated lines which must have been applied with the saw-blade edged knife normally used to put this ornamentation on the rim of the bowl. The surviving stem attached to this bowl is also unusual in having, unfortunately just where the rest of the stem is broken off, a "collar", or more properly a raised moulding of clay: what this was is uncertain, but it does not appear to be for the attachment of a stem of different material for the normal narrow bore of the stem appears to have continued into the broken-off part, and it may simply have been ornamental. Nothing similar is known among Evans's material found in Bristol nor in North America. To judge from examples of Isaac Evans pipes with RT impressed on the bowl facing the smoker some of which are typologically early, Evans worked in partnership or perhaps as a sub-contractor for Robert

Tippet enterprises intially; and Evans pipes similarly marked ER suggest he also worked for or with either Edward Randall jr or Edward Reed (see below) at some time. Products bearing no second mark, such as the Gloucester specimen, tend to by typologically later than the others, and one suspects he was producing appreciably later than his last recorded date of 1700/1, perhaps into the 1720s.[59]

Mention was made in the preceding paragraph of the ER mark being attributable to either Edward Randall jr or Edward Reed. Edward Reed (A 1699, F 1706, Master of the Company 1715, fl 1723, poss. fl 1735) apparently used as his standard mark his name in a cartouche on the right side of the bowl in what was a standard Bristol form of marking during this period: he also, however, sometimes added his initials impressed on the bowl facing the smoker, a common additional method of marking pipes in Bristol at this time,[60] and the problem is whether pipes bearing these initials ER without the Reed cartouche are to be regarded as his or the possible products of his contemporary Edward Randall jr (A 1689, F 1699). The problem is also discussed in the section on trade abroad, as ER-marked pipes have been found on a number of North American sites. Within the area of England and Wales where museum material was studied by this writer one Edward Reed pipe, with a cartouche inscribed E/REED/*, was noted at Tenby (from Caldy Island 2 1/2 miles south of Tenby); while a bowl marked ER facing the smoker and an illegible cartouche on the right side (fig a) is at the Royal Institution of South Wales at Swansea (from Cherriton 13 miles west of Swansea in the Gower peninsula). This latter bowl is of an early type 9 form showing the influence of the Hunt shape, and on typological grounds could be somewhat earlier than Reed's dates; the cartouche need not necessarily be Reed's, for pipes marked ER facing the smoker with a cartouche enclosing the marks of Isaac Evans (above), Henry Edwards (A 1689, F 1699, fl 1727), and the letters IR, T, and ER are all known from Port Royal, Jamaica, see Oswald 1968: passim and 1969 passim). Whatever the identification, however, this example can be assumed to be a Bristol product (for futher discussion see following section on trade abroad).

It has been suggested (Oswald 1960a: 48; repeated by I. Walker 1971c: 80-1; Atkinson and Oswald 1969: 186) that Edward Randall jr is the Edward Randall noted in 1719 taking an apprentice in London. The evidence for this, however, appears to lie in the same name occurring in the two centres at approximately the same time. In fact, nothing is known about Randall in Bristol after he took his freedom; no apprentices are recorded being taken by him nor does he appear in any of the poll books. If he is responsible for some the ER-marked pipes noted in the New World, pehaps in the capacity of a journeyman with Isaac Evans or Henry Edwards, for example, he must have stayed a few years into the C18 in Bristol (as a journeyman he would not be taking apprentices, hence would not be noted in the apprentice rolls); but London material attributed to him (Atkinson and Oswald 1969: 187 fig 5,23-5) includes one bowl (no 23) which cannot be later than ca.1700 at the latest, suggesting that if the Bristol Randall is the maker he cannot have remained long in Bristol and did not apparently take Bristol moulds with him when he left. Later bowls attributed to him loc. cit. (nos 24-5) are datable to ca.1720-50 and are of typical enough London-Home Counties type 9 forms, though the second appears to be of a later type. These latter two examples have E and R moulded on either side of the heel in typical London fashion and the same letters with some scroll-work and surrounded by a circle impressed on the bowl facing the smoker, which if less characteristic of London makers is certainly not a Bristol feature of the C18 unless it be considered a very florid development of the chastely stamped initials very common in that position on Bristol products or a throwback to some C17 Bristol marks, for example Llewellin or the William Evanses. The early bowl (no 23) has a simple ER on the heel, and really looks definitely earlier than Randall jr's dates. In this writer's opinion, a connection between the Bristol and London Edward Randalls has not been demonstrated by these bowls, nor is there any historical evidence known at present to substantiate the suggestion.

Oswald (in litt. 1 December 1970) notes pipes with the cartouche of John Macey at Gloucester and in the Thomson Collection at Nottingham probably coming from London. There were two John Maceys pipemakers in Bristol, father and son - John sr A 1691 F 1700 fl 1726 and John jr F 1723, one of them fl 1729 and D by 1738. The shape of bowl illustrated by Oswald is an early type 9 similar to some of those produced by Isaac Evans and Robert Tippet II (see above) which must date to ca.1700; this would very strongly indicate these products, assuming they were all of this shape, are those of the elder John Macey.

A bowl of type 9 shape with the letters TO impressed facing the smoker at Taunton is a product of one of three Thomas Owens pipemakers in Bristol during the first three or so decades of the C18. The first, Thomas sr, was apprenticed 1688/9, became free 1698 (though he is noted as a pipemaker two years earlier) and was dead by 1725; the second, his son Thomas jr, took his freedom in 1725; and the third Thomas, who was not a direct relation of the others, became free 1727. Either the second or third Thomas was still working in 1739.

A pipe made by either James or John Jenkins - more likely the former - pipemakers in Bristol about this time, occurs at Salisbury (Oswald 1959a: 60, 61 fig 4,B) and there is a possible example at Wookey Hole (the cartouche on the latter specimen is too blurred to provide a definite reading). James Jenkins became free 1707 and was still working 1739; his son John became free 1739 (the Jenkins cartouche, which occurs at Port Royal, Jamaica - see next section - reads I/IENK/INS, which makes it impossible to say whether James or John was the maker, but James seems more likely in view of the bowl style unless John was using some very old family moulds; the bowl style is too early for Joseph Jenkins F 1768 fl 1784).

A bowl of early West Country type 8 shape with IOHN/ABBOTT in a cartouche is noted at Warwick (Oswald in litt. 1 December 1970; not seen there by this writer). The only John Abbot(t) pipemaker known at present in England is the one in Bristol free 1651 and a guild founder-member the following year who was still working 1681 but was possibly dead by 1696: as is discussed below when considering dating evidence for the first appearance of West Country type 9 bowl forms, these forms were probably appearing there from the 1680s, so it is possible this pipe is a late product of John Abbot of Bristol. (As is noted below when discussing the oversea trade a John Abbot pipe is known from Jamestown, Virginia: it is marked IOH/NABB/OT but unfortunately it is not stated whether this is on the heel, as with the Hunt pipes, or in a cartouche on the side of the bowl - in view of Abbot's dates it could have been either.)

At Gloucester there is a West Country type 9 bowl with the letters CH facing the smoker. This form of marking, as noted above, is very common among Bristol makers in the first several decades of the C18, and while definite evidence for its identification, for example similar finds in Bristol, is lacking it is possible it is a product of Charles Hickes A 1714, F 1721/2, fl 1740, D by 1747? - certainly no other Bristol maker with these initials fits the period indicated by the bowl form. Similarly-marked pipes come from a site in Maine, one example at least appearing in a first-half-of-the-C18 context and another from Port Royal, Jamaica (Oswald 1968: 43 no 80, repeated in 1969: 31 no 59) (see below, section on trade abroad).

Finally, there is at Coventry a West Country type 9 bowl from the city with the letters GE in a cartouche on the right side in typical Bristol fashion. Bowls with this mark are known from Bristol and can plausibly be attributed to George Ebbery (F 1721, fl 1781). Because Ebbery was active over such a long period and not enough of his products are known from which a typological development might be deduced, this find cannot be closely dated, but the bowl form should belong to the earlier C18 and the balance of other evidence would certainly suggest it had reached Coventry via the Severn basin trade earlier rather than later in the C18.

The survey of identifiable Bristol material datable to the first two or three decades of the C18 in the preceding paragraphs does not exhaust the variety of type 9 bowls with or without the maker's mark in a cartouche on the side or impressed facing the smoker found in the museums or literature covered. However, it does cover all the material which this writer is prepared to put forward as definitely or probably Bristol in origin. That other Bristol material of this period was traded over the area is very likely, but as with the C17 material dealt with earlier, uncertain material has been avoided as much as possible.

In particular, just as it has been stressed that the Hunt-style chinned bowls of the mid- and later C17 are not an exclusively Bristol type, and indeed probably did not originate there and were less common there than other forms, it must also be pointed out that the type 9 style associated especially with the Robert Tippet family's products is equally not a purely Bristol style. This graceful type 9 shape is equally standard in Wiltshire from the 1680s as Atkinson has shown (1965c: 90-3, fig 2, rev ed 1969b; 1971: 181, 182-3, fig 2). The use of a cartouche on the side of the bowl (almost invariably the right side) and/or the use of letters impressed on the bowl facing the smoker does seem to have been a Bristol characteristic, for Wiltshire makers of this period invariably appear to have impressed their names on the top of the stem within an inch or so of the bowl (Atkinson loc. cit.), but even so cartouches do not appear to be exclusively Bristol. A maker P. Andrs (sic) produced pipes with P./AND/RS in a cartouche and probably those with PA in a cartouche as well during this period, but he is not a Bristol maker; a PA-cartouche pipe, incidentally, is known from an early or mid-C18 Colonial site on Nantucket Island, Massachusetts, together with two other pipes with "similar but industinguishable maker's marks" (Bullen and Brooks 1949: 87, fig 20 upper rt; better photograph in Oswald 1959a: 60, fig 3,b) and others have been found at Pemaquid, Maine (Mrs H. Camp in litt. 27 July 1966, seen by writer November 1972). This maker's place of work is unknown, but he may have been a relative of Roger Andrus of Claverton near Bath apprenticed in Marlborough in 1718 and producing pipes there during the period ca.1725-30 bearing his name in the standard Wiltshire manner (Atkinson 1965c: 90-2, fig 2,97-8, rev ed 1969b).)[61]

Bearing this in mind, therefore, it seems better not to attempt to list various possible identifications but to assume the foregoing examples represent a random but reasonably-accurate cross-section of what Bristol trade in pipes there was in England and Wales at this period.

At the beginning of this study (1: II(a)) it was noted that light might be shed on the origins of Oswald's type 9 bowl-shapes as the study progressed, for it seemed possible the type might have started in Bristol or the West Country. An explanation which entirely satisfies all aspects of the problem is still lacking, but as noted above a development of the type 9 style at least in the West Country from the earlier West Country chinned style is plausible.

In describing his class 9 bowls, Oswald noted (1961: 60) they occurred in England principally in two areas: London and the Home Counties, and the West Country. With the increased study of pipes since that time it can now be seen there are distinctively London-Home Counties and West Country versions of this type. The former comprises those depicted by Atkinson and Oswald (1969: 180 fig 2,25-8) for London, by Atkinson (1964a: illus. facing p.73 nos 9-14) for Sussex, by Tilley (1971: 173 no 12, 174) for the Gravesend area of Kent, and the products of an C18 pipemaker's waster dump at Guildford in Surrey (Kingsford-Curram 1968: 88 fig 1). The latter are typified by the later Robert Tippet products, the later Thomas Owen pipes, and those of many other Bristol makers such as Isaac Evans and Edward Reed, with the maker's name typically in a cartouche moulded on the bowl side; by standard Wiltshire products of this time as shown by Atkinson at Marlborough (1965c: 91 fig 2,Q-V, rev ed 1969b; 1973) and Salisbury (1971: 182 fig 2,15-23; 1973); and by pipes produced in Hampshire (Atkinson 1970a: 186, 182 fig 71,95; 1972b: 74 fig 32,6-7; material seen by this writer in Southampton and Winchester museums), both of which latter groups characteristically have the maker's name stamped in two or three lines, frequently within a circular surround, on the top of the stem towards the bowl. This latter form of marking is used by makers as close to Bristol as Bath (Owen 1967: 53, 54 fig 2,22; Atkinson 1971: 186; Brown and Sneddon 1973: 295) and in the opposite direction spread as far as Chichester in SW Sussex (Atkinson 1970b: 159, 160) and Guildford in west Surrey (Atkinson 1968: 14); and as noted below, what appears to be a local version of this form using a symbol instead of a name has been found on pipes excavated at Poole in SE Dorset - a possible example of this latter variant is the two-headed eagle, the arms of the city of New Sarum, found in this position on the stems of pipes at Salisbury (Atkinson 1973: 151, 150 fig 1,15).

In other directions the West Country type 9 style, predominantly with the Wiltshire-Hampshire form of marking the maker's name, extends west and

SW into east Somerset and Dorset. At Shaftesbury in north Dorset examples occur but type 10 pipes of the Taunton-South West variety are absent, and at Dorchester in south Dorset a few type 10 bowls occur but more so type 9, of which there appear to be local derivatives (cf Atkinson 1970c: passim; E. Watkins 1966: passim). To the north, at least one Oxfordshire pipemaker, Benjamin Abbott whom Oswald notes working at Ramsden in the western part of the county in 1758 (Oswald 1960a: 55; 1970b: pl 213, p.244), was using a typical West Country bowl form of the early C18 (bowl with marked stem at Filkins and Broughton Poggs Museum, Oxfordshire - Abbott used a Broseley-style stem-mark; for a discussion of this see the following sub-section).

That these two varieties of type 9 overlap in distribution and therefore, as they are broadly contemporaneous, may have influenced each other, is indicated by West Country examples being found in London (Atkinson and Oswald 1969: 180 fig 2,23) and Sussex (Atkinson 1964a: illus. facing p.73 no 8). With the area producing West Country type 9 bowls extending as far east as Hampshire, one probable route by which this bowl style could have reached London would be through north Hampshire; another route east, particularly suited for contacts with Sussex, would be the coastal trade from Southampton and Portsmouth (for an example of this see below). Indeed, as Atkinson notes (1972b: 75), Hampshire in the C17 because of its geographical position typically did show an overlap in pipes from the Home Counties and those from the West Country. Thomas Hunt pipes from Marlborough have occurred in south and east Hampshire (Atkinson 1965c: 93, rev ed 1969b), London (T.G.H. Price 1900: 234, 235 fig 16; Atkinson 1962a: 184, 183 fig 1,14 and b), and indeed as far away as Durham (Parsons 1964: 238). Also known from London is an example of the similarly high-quality type 9 products of Richart Cutts (Atkinson 1962a: 186, 185 fig 2,45 and f) and a Richard Sayer-marked stem from Fulham (Atkinson in litt. 27 June 1974). Richard Cutts is probably the person of that name whose marriage in 1693 is recorded at East Woodhay, a noted pipemaking centre of the time ca.6 miles SW of Newbury in Hampshire (cf R.H. Cooper in Hampshire Chronicle 29 August 1964), though no occupation is specified in this reference (Atkinson 1965c: 92 and 95 n.14, 91 fig 2,V and 75, rev ed 1969b). As Atkinson notes, Cutts's pipes have also been found at Marlborough, Winchester, and Southampton, indicating he had a widespread market though his place of work is at present unknown. Richard Sayer-marked stems, though so far never found with the bowl attached, are similarly widespread in Wiltshire and Hampshire, have been recovered at Marlborough, Salisbury, Basing, and Winchester (Atkinson 1965c: 93, 91 fig 2,76, rev ed 1969b; 1971: 187 and 188 n.7) and Sayer appears to have been working ca.1680-ca.1720, though his place of work, like Cutts's, is also at present unknown. Products of a John Edmonds, probably the John Edmonds of Portsmouth noted in a 1751 reference though his occupation is not given, have been found at Portsmouth, inland at Bishops Waltham and Winchester, and along the coast as far east as Arundel (Atkinson 1966: 273, 274 fig 3; 1970a: 186, 182 fig 71,95-6) and as far west as Plymouth (Oswald 1970a: 132, 133 fig 55,32), the Arundel find indicating, as noted above, this bowl style reaching into Sussex. Atkinson's work on Portsmouth pipes (1969c) indicates that both West Country and London-Home Counties type 9 forms were being produced there in the earlier C18 (for distribution of these types see FIG 155).

An interesting situation appears to exist at Poole in SE Dorset. The vast majority of the earlier C18 pipes occuring in the extensive urban archaeology work now being undertaken in the town are of London type, having the London-Home Counties bowl form and the maker's initials on either side of the heel in the characteristic manner of London pipes of this time. There are a few West Country type 9 bowls with the Wiltshire-Hampshire tradition of placing the maker's name on the top of the stem, and even fewer of the south Dorset bowl shape derived from the West Country type 9 form and noted above as occurring at Dorchester ca.20 miles to the west. A study of Poole pipes has yet to be undertaken, though a useful survey of the Poole pipe and pipeclay industries has been begun by Cooksey (MS 1), and until this is done it would be premature to claim Poole as the western outpost of the London-Home Counties type 9 bowl form in the earlier C18 for it may be that the pipes of this type in Poole are direct imports from London and a result of the pipeclay trade between Poole and London; if this is so, however, it might imply there was little in the way of a local pipe-industry whereas while admittedly no pipes were shipped from Poole in the half-year ending Christmas 1749 (Willan 1938: 156, 1967 ed) there is evidence that at least in the late C17 Poole had a pipe industry of some importance, for Southampton was importing pipes from there in the year ending Christmas 1687 (Willan op. cit. 152) and records for Poole show that between Christmas 1690 and Christmas 1691 482 gross, 2 hogsheads, and 3 chests of pipes were shipped to Portsmouth (the largest receiver with 216 gross), Weymouth (the next largest), Plymouth, Cowes, and - surprisingly, but no doubt because pipeclay was also being sent there - as far away as Newcastle upon Tyne (Willan op. cit. 156) (a number of the Wiltshire-Hampshire style pipes from the Poole excavations have a symbol - e.g. a rose - on the top of the stem instead of the maker's name: this may possibly be a local style). (The Poole excavations material was examined by this writer October 1973; I am grateful to G. Dowdell for showing me his finds.)

As is discussed below, by the last quarter or so of the C18 the later London-Home Counties form of Oswald's type 9 was being adopted in Bristol by the later Okelys, the Samuel Richardses, Anna Viner, and - if decorated bowls with WN in a cartouche are the products of William Nicholas (see p.637 below) - his later products too. The Marlborough industry had apparently died out sometime in the middle of the C18 (Atkinson 1965c: 88, 94, rev ed 1969b), but at Salisbury, where the industry continued into the C19, London-style type 9 bowls were being produced by local makers from the second half of the C18 onwards (Atkinson 1971: 181, 182 fig 2,24-6, though Atkinson considers fig 2,25 to be different from similarly-shaped London and South-East bowls). At Portsmouth, Atkinson's work (1969c) suggests that the West Country type 9 style is ending ca.1760 while the London-Home Counties type 9 style continues past this date.

This is perhaps part of a general pattern in English pipemaking at this time, for derivatives of the London-Home Counties type 9, Oswald's types 11 (ca.1780-1850) and 12 (ca.1820-50), become a basic series of shapes for C19 bowls. Because of the scarcity of identifiable later C18 Bristol material, it is difficult to date the change in Bristol, but Robert Tippet-marked bowls from 1750-60 contexts in North America (see section on trade abroad) belong to the orthodox Bristol style, and though there are no documentary references known to the Robert Tippets after 1720 the family must have been in business for much longer. For example, there are at least 15 Robert Tippet-marked bowl-fragments from the 1969 season of excavations on an underwater wreck in the Baie des Chaleurs on the Quebec-New Brunswick border which must date to 1760: those examples complete enough to show bowl form indicate a smaller and rather more upright shape (fig z) than the classic form of the earlier C18, but still within the Bristol-West Country type 9 tradition. Two similarly-shaped but unmarked bowls came from a 1750-60 context at Louisbourg, Nova Scotia (I. Walker 1971c: 67 fig 8, 65-6, 75). Similarly-shaped Robert Tippet pipes, including one form verging on the London shape, were found at the Whitson St kiln site in Bristol, together with others datable typologically as early as the late C17 (Marochan and Reed n.d.).

If the London-Home Counties bowl noted above with the WN cartouche is in fact a William Nicholas product then it must date to the 1770s as the latest as Nicholas, who had already been in business for 45 years, last appears in the 1775 trade directory and if he did not die about that time he would probably have either retired or lost his business with the outbreak of the American Revolution. Certainly Anna Viner, who was working by 1775 and continued until 1805, was producing bowls of this shape; several were recovered from a New York state site datable to 1778-1812 (see section below on trade abroad). A date for the introduction of this style to Bristol of between 1760 and 1775 seems likely, herefore. About the beginning of the last quarter of the C18 too, the type 10 series, which had been current for much of the century and represents developments of pre-type 9 bowl shapes, is disappearing, Oswald (1961: 60) giving a terminal date of ca.1780. It is to the type 10 series, as noted earlier that the Taunton and South-West pipe styles belong.

The perplexing problem as to why no documentary references to the Robert Tippet family are known after 1720 when their pipes are so widely found in North America in contexts up to 1760 is compounded by a bowl from Bristol, which from its pristine condition appears never to have been smoked, of the same general shape and size as that in fig z except that it is heeled, but with quite elaborate floral and scroll decoration on the front and back of the bowl in addition to the R/TIP/PET cartouche, the circle of which has a watch-wheel decoration. As discussed in detail later (p.637), the occurrence of scroll decoration on probable William Nicholas pipes gives a terminus ante quem of the 1770s at the latest for the introduction into Bristol of this form of decoration (cf above), and there are references to bowls with this general form of decoration by ca.1770 (1: II(h)), but it is difficult to accept this Robert Tippet bowl as dating to before 1760 and it certainly could date much later.

More research is needed on the Robert Tippet family and its products, for it is difficult to avoid contemplating the possibility that Robert Tippet-marked pipes may latterly have been produced by some other Bristol maker after the Robert Tippet family had either died out or stopped pipemaking. The obviously lucrative New World market enjoyed by the Robert Tippets would certainly have been an incentive to Bristol makers to have continued it if possible: it is conceivable the Robert Tippets could have sold the name and goodwill of their firm to another maker. If so, it seems unlikely they were acquired by the Robert Tippets' younger cousins, the William Tippets (William I was a younger brother of Robert II), for the last reference to a William Tippet is in 1739; John Tippet II was still alive in 1754 though he had died by 1766, but he was apparently not a close relative (if he was indeed a relative at all) of the Robert and William Tippets, and as he is never recorded taking apprentices it is much more likely he was always a journeyman with some other maker (cf p.518 above). If the Robert Tippet business was indeed bought out, it was presumably by a major Bristol maker, but so little is known about the status of individual pipemakers it is difficult even to hazard a guess as to possibilities. George Ebbery (F 1721, fl 1781) and William Nicholas (F 1730, fl 1775), for example, are two makers who lived long enough to cover the period involved, but pipes attributable to both of them and bearing their own initials are known from North America, two certainly and one probably from post-1750 contexts, indicating they were shipping their own marked products abroad, which seems to lessen the likelihood of their manufacturing pipes for export with another name on them. An intriguing point is the occurrence of the floral- and scroll-decorated Robert Tippet-marked pipes together with pipes attributable to Israel Carey II in two kiln-tip deposits of essentially identical material, one found in 1971 at the angle of Broad Weir and Lower Castle St and the other found in 1973 immediately below Whitefriars, a lane off Lewin's Mead. The first deposit was adjacent to the Castle Green premises occupied by Israel Carey from 1782 until sometime between 1787 and 1791 and by his son John from 1791 or earlier to 1792 (R. Price in litt. 18 January 1974; see also pp571 and n39 and 766-7 below); as for the second deposit, Israel Carey was certainly at Lewin's Mead in 1775 - Sketchley records him at no 38 - and probably still there in 1781 as he is recorded voting in that year from St James, and he is also recorded voting from St James in 1774 so was probably already in Lewin's Mead by that date. Unfortunately, he took his freedom as early as 1756, and thus could have been working at Lewin's Mead from that date, so that the association of stylistically very late Robert Tippet-marked pipes with the Carey material at Whitefriars does not absolutely indicate a 1770s date for the former, though the Whitefriars Carey material's being identical to that from Castle Green does stongly suggest a date this late. Unfortunately, as we know the Robert Tippets (and the William Tippets) lived in Lewin's Mead at any rate at the end of the C17 (pp524-5), later C18 Robert Tippet-marked material from that area might as easily indicate the family continued in business there, somehow otherwise unrecorded, as suggest Carey or some other maker was producing Robert Tippet-marked pipes. A possibility to be considered is that a female member of the Robert Tippet family (cf Tippet family tree in Appendix IX) married an at-present unidentified Bristol pipemaker who inherited the family business. Unfortunately again, the Bristol Pipemakers' Guild Book surviving for the period 1709-66 records almost nothing of the guild's business - in which one would surely have recorded something as important as the transfer of an important business - and does not even note the Masters and Wardens, a list of whom would have indicated the most important makers of the period.

As has been discussed in Section V above, and is examined again below, 35 Bristol pipemakers are known left that city between the late 1720s and

1784. Of these, 32 went directly or eventually to the London area, and of these, four subsequently returned to Bristol. These four are:

John Frederick Bryant sr - F 1747, fl 1753-60 London, fl 1760 Bristol, D there ca.1777;

William Pearce - A 1721, F 1733/4, fl Bristol 1747, fl London 1754, fl Bristol 1756-74, prob. a later William Pearce noted in 1784 polls;

Samuel Richards II - F 1774 when at Woolwich, returned to Bristol later 1770s, fl there 1812;

John Edwards - F 1784 when at London, fl 1812 London, fl 1818 Bristol.

From the reminiscences of John Frederick Bryant jr, we know his father left Bristol because he did not like the pipemaking trade and went to London where he became a journeyman house-painter, returning in 1760 to start pipemaking only at the persuasion of a relative. It is perhaps unlikely that he brought back any moulds or new ideas on pipemaking from London, but the same source tells us Richards had a reasonably prosperous business at Woolwich and returned to Bristol because he had married a wife of "some considerable expectations"; and other evidence indicates Richards certainly continued his trade in Bristol. Pearce too we know to have continued his trade on his return to Bristol, for he is noted taking an apprentice in 1756, less than two years after he is recorded still in London. Edwards, however, is definitely out of the question, since whenever he may have gone to London his return in the 1810s is ca.40 years later than the date at which London-style influence must have been reaching Bristol. Although, therefore, it is clear the London type 11 bowl form was spreading throughout England by about the last quarter of the C18 and perhaps as part of a general change, it is worth considering that William Pearce and Samuel Richards II, is not John Frederick Bryant sr, did bring a contribution of London-shaped material to the Bristol industry in the second half of the C18.

The problem of where the general type 9 shape originates, however, still remains. In Bristol, the large amount of Robert Tippett family material provides a useful typological series, for the family's products, or at least (see above) products with their name, cover the century 1660-1760 and thus straddle the period ca.1680-1700 when the type 9 shape was appearing. The fact that the three generations of the family are all called Robert, and the surprising lack of documentary evidence on what must have been a well-to-do family, makes it difficult to date the material very precisely on historical evidence, but if - as suggested above - there were latterly pipes being produced with the Robert Tippet name which were not made by that family, this should not affect the earlier Robert Tippet-marked material, and the identification of material attributable to J(o)ane Tippet the widow of Robert I does provide dating for type 9 material, as is discussed in detail below. As FIG 156 shows, a convincing pattern of typological development is discernible, and a good case can be made for the Bristol type 9 bowl-shape evolving from the earlier West Country chinned type or at least from its influence.

In the second half of the C17 bowls became steadily larger - no doubt as tobacco became rapidly more plentiful (see 1: V) and technology improved, resulting in thinner bowls and stems and narrower stem bores; and it is these features which contribute the major changes to the typological progression towards the type 9 shape from the small chinned bowls of mid-century. Thus, for example, the Robert Tippet bowls _c_, _g_, _h_, and _o_ in FIG 156 convincingly offer the typological steps from the small chinned bowls to the true Bristol type 9 pipes of the Robert Tippet examples _t-y_ in FIG 156. Interestingly, as noted earlier, a similar sort of evolution can be made for the Taunton and South-West type 10 bowl style, also deriving it from the West Country chinned style, using the extensive collection of material in the Somerset County Museum at Taunton.

More important, however, from the point of view of establishing the origin of the West Country type 9 style, is the fact that an equally persuasive typological development from the small chinned bowls to the type 9 shape can be seen in the Marlborough pipe material studied by Atkinson. Thus Atkinson's bowl-shapes K-V (1965c: 89 fig 1,K-P and 91 fig 2,Q-V, rev ed 1969b) show a flawless typological progression (FIG 157), with shapes K-O and Q and V all known to have been produced by one pipemaker, Thomas Hunt, who is first noted in 1667 and is still working in 1696, thus straddling like the Robert Tippets but in clearer fashion the crucial period in which the type 9 form appears. In two West Country centres, therefore, convincing evidence can be produced to suggest that the West Country type 9 bowls were the result, not of any outside stimulus as has been persistently suggested since at least 1852 (1: II(a)), but of a simple evolution from a widespread mid-C17 West Country form, the chinned bowl possibly made famous initially by the Gauntlett family in south Wiltshire.

At this point one has to consider the London-Home Counties version of the type 9 shape to see whether it too might have developed out of earlier local bowl forms. Here one is on less certain ground. There is a wide variety of bowl shapes being produced in London in the C17, but one which is worth considering is Atkinson and Oswald's type 8 (ca.1610-40), which retains the same form throughout most of the century, changing only in increasing size as it evolves through Atkinson and Oswald's type 15 (ca.1660-80) to their type 19 (ca.1690-1720) by which time the bowl has become somewhat elongated (Atkinson and Oswald 1969: 177-9, 180, figs 1 and 2 _passim_; the various types referred to here are reproduced in FIG 4 and "Atkinson and Oswald" in the text will be shortened to A-O). During the period ca.1660-80 a distinctive new shape, with the bowl set at a marked angle to the stem but straightsided, with back and front parallel to each other, appears - this is Oswald's type 7 series, particularly type 7a (Oswald 1961: 58, 59 fig 1,7), A-O type 18. This shape too has been held to show Dutch influence (e.g. O'Neil 1961: 378); this is discussed below. As Atkinson and Oswald note, their type 18 evolves into their types 20 and 22 (ca.1680-1710), the bowls becoming more elongated but still remaining basically parallel-sided with some curving in towards the base. One might argue that A-O type 21 (ca.1680-1710) was a development resulting from a fusion of elements from their types 20/22 and 19; certainly type 22 can be regarded as a prototype for the true London-Home Counties type 9 series represented by A-O types 25 (ca.1700-70) and 26 (ca.1740-1800). The argument, however, is not as convincing, at least to this writer, as that deriving the West Country type 9 bowls from the West Country chinned types; but it does not do violence to the dating of their various London types given by Atkinson and Oswald.

The question now arises as to whether there might be any influence on the London-Home Counties type 9 series from the West Country type 9 pipes, or whether the influence might be the other way, or whether influence both ways might have occurred, or whether there was no influence either way and two similar forms evolved independently at approximatly the same period.

It is difficult to give definite answers to these problems. As noted earlier, West Country type bowls do occur as far east as London and Sussex; London-style type 9 bowls, however, do not appear to have come a comparable distance west until the last quarter or so of the C18, though the sporadic occurrence in some parts of the West Country of moulded initials on either side of the spur or base on West Country bowls usually in addition to the traditional methods of marking these pipes, suggest the percolation west of London influences (Atkinson and Oswald 1969: 203). However, late examples of chinned bowls and a version verging on its development into the West Country type 9 style were actually being copied by some London makers in the later C17 (Atkinson and Oswald 1969: 179, 178 fig 1,16-17, 185, 186 and 188, 187 fig 5,26). (If the John and Thomas Hunt appearing as journeymen in the ca.1696 oath of allegiance to William of Orange presented by the London pipemakers' guild were indeed two of the sons of Bristol pipemakers Flower and Christian Hunt (pp600-1) and if the Edward Randall noted taking an apprentice in London in 1719 were indeed the Edward Randall jr F 1699 in Bristol as has been suggested (Oswald 1960a: 48; 1961: 62 n.6; Atkinson and Oswald 1969: 186, 187 fig 5,23-5), there would have been at least one or two Bristol-trained makers working in London at the end of the C17 or beginning of the C18; unfortunately, however, all these identifications lack proof, as has been noted above (pp600-1 & 611-2).) There is some similarity between A-O types 20 (ca.1680-1710) and 19 (ca.1690-1710) and some Robert Tippet pipes (e.g. figs j and k), and these latter do not appear to be standard Bristol varieties, but it would be as easy to regard the Robert Tippet examples as out-of-the-mainstream forms produced by a prolific and inventive family of pipemakers.

Dating evidence might also suggest London and the Home Counties adopted their type 9 versions later than did the West Country, thus at least allowing the possibility of the basic style spreading into the London area from the west; as is discussed below, the West Country type 9 was appearing in the 1680s and 1690s whereas Atkinson and Oswald date the appearance of the true London-style type 9 - their type 22 - to ca.1700. At Portsmouth, Atkinson (1969c) shows that both West Country and London-Home Counties type 9 forms were produced, the former covering the period ca.1690-1760 and the latter the period ca.1720-60 and later, again suggesting the West Country forms predate, or at the very least are evolving independently of, the London-Home Counties styles. Further, the London bowl-shapes which precede the London type 9 forms at Portsmouth are A-O type 19, which as noted above is a proto-type 9 form which can be derived from earlier London forms and dates at Portsmouth to ca.1690-1710, and type 22, which is a late Oswald type 7 form dated here to ca.1690-1700 and unconnected with the type 9 style. This emphasizes the lack of true London-Home Counties type 9 forms at Portsmouth prior to ca.1720.

Excluding the Robert Tippet family for the moment, Bristol makers of the later C17 and early C18 known from marked bowls to have been producing pipes in the type 9 style are as follows (they are arranged in order of date of freedom):

R. Williams - either Roger F 1668, fl 1677, D by 1692 or Robert I A 1674, F 1685, fl 1714;
James Abbott - F 1676/7, fl 1715, D by 1721/2;
William Taylor - A 1681/2, F 1688/9, fl 1706, D by 1721;
John Hunt - one or both of two brothers with same name, sons of Flower Hunt; one F 1689, the other A 1685/6 and F 1694, at least one fl 1716/7;
Devereaux Jones - one or both of father A 1684, F 1691, fl 1713, D by 1727 or son prob. B after 1696, F 1727, fl 1739, D by 1748;
Charles Chick - A 1688, F 1697, fl 1707, D by 1721/2 according to Burgess Roll entry but listed in 1722 Poll Book;
Thomas Owen - one or more of three makers with this name: father A 1688/9, fl 1696, F 1698, D by 1725; son F 1725; third Thomas A 1716, F 1727; second and third Thomas both fl 1739;
Isaac Evans - son of one of the William Evanses and listed with father 1696, F 1698, fl 1700/1;
Henry Edwards - A 1689, F 1699, fl 1727;
Henry Hoar - prob. A 1688, with Robert Tippet II 1696, F 1699, fl 1723, D by 1739;
John Macey - one or both of father A 1691, F 1700, fl 1726 or son F 1723; one fl 1739;
Edward Reed - A 1699, F 1706, Master of Company 1715, fl 1723, poss. fl 1735;
I. Jenkins - prob. James A 1700, F 1707, fl 1739; son John F 1739 prob. too late;
John Wilson - F 1707, fl 1722.

Unfortunately, most of these makers span too long a period to supply precise dating, either because they worked over a long period or because like the Robert Tippets, father-and-son or other combinations of the same name make specific attribution of marked pipes difficult. To attribute a bowl to a certain maker among more than one of that name because the bowl can typologically suit that maker's dates tends to beg the question, since before the typology can be used with confidence its correctness has to be proved from datable material. All 22 makers listed above, so far as is at present known from material found either in England and Wales or in North America, produced pipes only in type 9 shapes, but this does not disprove that some of them may have made pipes in earlier shapes: it would go against all other accumulated evidence, for example, to suggest that because Roger Williams became free in 1668 and possibly produced type 9 pipes that he could have been making them as early as 1668.

If the R. Williams bowl could be proved a product of Roger Williams, however, this would be strong evidence for dating Bristol type 9 bowls from the 1680s at the latest, for Roger was definitely dead by 1692 and though last certainly noted alive in 1677 was possibly alive in the later 1680s. Typologically the bowl should be early, but either Roger or Robert I could have produced it; however, even if the bowl cannot be closely dated on historical evidence it is still significant that with the questionable exception of Roger Williams no maker earlier than Robert Tippet II F 1678 is known to have produced a type 9 bowl form, whereas there are a score or more makers using this form in the decades following. A warning about the over-precise use of typology for dating, however, is indicated by comparing the Williams bowl and ones used by Chick, Macey, Reed, and Wilson - they are all virtually identical, suggesting this "early" form was still common at least as late as the first decade of the C18 and probably into the second (cf remarks made on p.15 above regarding the Bristol Pipemakers' Guild Book entry of 1734/5 referring to there being a guild mouldmaker, who may well have produced moulds of identical bowl form for a number of different makers and over a period of time).

Additional evidence comes from Atkinson's study of Marlborough pipes. As noted earlier, Thomas Hunt of Marlborough, who was working for at least the period 1667-96, produced a whole series of piper covering the typological development of the chinned bowls into type 9 form. The last known date for Thomas Hunt, 1696, is not the date of his death, so there is no definite terminus ante quem for his type 9 bowls, and Atkinson (1971: 186; 1972c: 156) dates Hunt's bowls up to ca.1710, but the variety of type 9 material Hunt did produce suggests he had been making this style for some time before he died. Atkinson (1965c: 92, rev ed 1969b) suggests Hunt introduced the type 9 bowl form ca.1685, which date seems reasonable particularly as Thomas Hunt pipes, one of them an early form of type 9, were found in a context in Durham with a terminus ante quem of 1684 (Parsons 1964: 238, 244).

At Salisbury too the type 9 form was in use before 1700, Atkinson (1971: 181) noting that at least two makers there were producing this style ca.1690.

Some corroborative evidence comes from the occurrence in North America (see section on trade abroad) of pipes made by J(o)ane Tippet, widow of Robert I: her pipes are of a mature West Country type 9 form (Oswald 1959a: 60, fig 2,B and D; I. Walker 1971c: 79 fig 18) - typologically of a later form than the Williams pipe - yet the last reference to her is in 1696. Her husband, Robert I, died between 1680 and 1687 and presumably following his death J(o)ane took over his business; she appears therefore to have been working at least in the 1680s and 1690s. Unfortunately it is not known when she died, so that the 1696 date is not a firm terminus ante quem - her pipes from Louisbourg are probably early C18 - but there is a definite possibility she was producing type 9-shaped bowls appreciably before 1700.

Further archaeological evidence for a 1690s or earlier date for the introduction of the West Country type 9 style comes from the Pen site in New York state (see section on trade abroad), believed to be a site whose destruction in 1696 is historically documented. Here both Thomas Owen and Robert Tippet pipes of developed type 9 form together with a number of unmarked pipes of the same shape were recovered.

There is thus evidence to indicate that the West Country type 9 series of bowls had appeared some 10-15 years before the apparent first appearance of the London-Home Counties version ca.1700. There is, at least at present, no direct evidence that the London style was influenced by the West Country types, but the presence of West Country-style bowls in London and Sussex, including Thomas Hunt bowls in London in an early type 9 form, indicate at least the possibility that the London-Home Counties series did owe something to influence from the West Country.

However the type 9 series spread, it did so rapidly, for it was appearing in the North-East before 1700: Parsons (1964: 236 fig 1,8 and 9) dates forms showing type 9 influence from ca.1680, noting the change seems to be just appearing in material sealed under a floor of 1684 (1964: 244, 238). In general Parsons's North-East typology suggests London influence on local C18 type 9 shapes (fig 1,10-12), but several pipes in the deposit with the terminus ante quem of 1684 were Thomas Hunt pipes as already noted. London influence and London-marked pipes are noted in the North-East from the early C17 (Parsons 1964: 238), no doubt as a result of the coal-trade but the presence of these Thomas Hunt pipes, shows West Country contacts that far and indicates one has to consider the possibility of West Country type 9 influence appearing at the other end of the country.

Finally, one has to consider whether there could have been any foreign influence stimulating the evolution of the type 9 shape - in other works, the oft-quoted but never convincingly demonstrated Dutch influence supposed to have been brought over with the troops of William of Orange in 1688 (the history of this explanation is examined in 1: II(a)). When this writer commenced his study of clay pipes from Louisbourg in the early 1960s, he was aware that an obvious weakness in this explanation, aside from the dates not really agreeing, was the lack of any convincing Dutch pipe style which could be cited as the required prototype. Little work, however, had been done to establish various Dutch bowl types.

Omwake (1965b: 13) suggested the prototype Dutch form was a heelless conical bowl with straight sides, set at a relatively upright angle - ca.100° - to the stem. As noted earlier (pp269-70 above), Omwake was apparently describing a bowl-shape found in the general area of Dutch influence in the NE United States, particularly New York state (FIG 118 in this study). This does not offer as convincing a parallel to type 9 features as does a hitherto unknown Dutch bowl shape found by this writer and described below (p.626 ; FIG 119); however, it might be considered as influencing the English type 7 shape with its parallel or roughly-parallel bowl sides, which does appear to be a distinctive new shape occuring from ca.1660 onwards with no known native antecedents, though as noted above the Dutch pipe has a conical bowl. There is a Bristol type 7 variant which appears, however, to have been restricted to some of the products of one or both of the William Evanses (figs c and d) and probably some of the later James Fox products (cf pp608-9 above) and in a heeled form to some products of the William Evanses (Oswald 1969: 23 no 34) and of Llewellin Evans (Oswald 1968: 35 no 53; 1969: 23 nos 30-1).

The possibility of this distinctive Dutch shape, which is unlike any other Dutch pipe style known to this writer either from published work or from visits in 1968 and 1969 to Belgian and Dutch museums, influencing the development of English pipe forms cannot be entirely dismissed, but if so the putative English derivitive was appearing ca.30 years before the time of William of Orange.

There is a variety of Dutch bowl which does have substantially parallel sides (e.g. Friederich 1964a: 8 fig 1 3rd row, centre and 11 fig 7 top row, centre; 1964c: 58 fig 1 3rd row centre and 61 fig 3 top row, left and 2nd row, left and btm row, rt; 1964d: 4 passim) which might be held as having some connection with this particular bowl under discussion here, but there are two key differences - the relative length of the bowl illustrated in FIG 118, which is appreciably greater than in those illustrated by Friederich, and the total lack of a "waist" where this bowl joins the stem, a feature present in all those illustrated by Friederich. The most Friederich's illustrations indicate is that fairly straight-sided bowl forms, though nothing close to that in FIG 121, are known in The Netherlands.

At present there seems no concrete evidence for Dutch influence being involved at this point beyond some similarity in shape and the occurrence in England of a new bowl-shape with no obvious English prototype. In any event, there seems no evidence to connect the type of Dutch bowl illustrated in FIG 118 with the type 9 forms, unless as noted above very indirectly in London with A-O types 18/20/22 influence on type 19 to produce types 25 and later 26 in the C18. Certainly the William Evans Bristol type 7 variant lies outside the mainstream of typological development from the chinned West Country bowls through to the West Country type 9 forms.

If any area of England were to be considered particularly open to Dutch influence through traditional trade connections it might be East Anglia: there is perhaps a possibility of a Dutch pipemaker working at Colchester in the second half of the C17 (Gant 1961b: 49), but Harley's claim (1963: 35) that a kiln discovered in Colchester had been run by a Dutch immigrant is erroneous - Harley appears to have equated Oswald type 9 bowls found there with true Dutch-shaped bowls (see 2: VII). A detailed examination of the East Anglian industry might reveal instances of Dutch influences, however - certainly at the end of last century it was noted (Cole 1892: 182) that country people in Essex called old pipes they found "Dutchmen". In fact, Dutch influence in the C17 has been noted on pipes from several east and south coast centres which were involved in Dutch trade, for example Edinburgh, Kingston upon Hull, Plymouth, and possibly Ipswich, and Dutch imports occur at Bedford (Oswald 1970c: 93, fig 14,6-7) and are considerable for this period at Hull and Plymouth (Oswald 1970b:230-1); however, only at Plymouth so far does there appear to have been influence on local types, Oswald suggesting one local bowl form of general type 9 shape and datable to ca.1680-1720 as showing Dutch influence (1970a: 126, 132, 133 fig 55,33, 142). Again, however, there is nothing to suggest this as a source for the spread of type 9 characteristics; rather, these bowls are probably of English type 9 form with what Oswald identifies as a Dutch modification to the profile of the front of the bowl.

Some of the problems in searching for a suitable Dutch prototype for the type 9 form can be seen when comparing an early form of the latter in Bristol (e.g. FIG 156, h-j and o in the Robert Tippet sequence, particularly fig o) with variants of the Dutch bowl form noted above and illustrated by Friederich (e.g. 1964a: 11 fig 7 1st row, left and centre; 1964c: 58 fig i 3rd row, centre; 1964d: 4 no 14). There is a parallel in the "waisted" junction of the bowl to the stem and in the slightly bulged middle to the bowl, and if the Dutch form had its rim parallel to the line of the stem its profile would look distinctly similar to the English. On the other hand, the English form can be convincingly shown to be a transitional shape between the later, bigger, chinned bowls (e.g. Robert Tippet fig c) and the true West Country type 9 form with no need at all to invoke outside influence.

Among the pipes at Louisbourg there did appear one Dutch example with a bowl quite unlike other known Dutch bowls which could plausibly be suggested as the missing prototype (I. Walker 1971c: 113 fig 44: FIG 122 in this study). The pipe had typical Dutch stem-ornamentation and a typical Dutch heel-mark, and was of good quality; the mark does not occur in Helbers and Goedewaagen's study of Gouda pipemakers (1942) but neither did several other marks on orthodox Dutch bowls from Louisbourg and in any case the pipe need not necessarily have been Gouda-made. One of the basic characteristics of Dutch pipes is the plane of the bowl rim always - into last century and even this - lay at a marked angle to the line of the stem (e.g. FIG 154 lower): in this Louisbourg example, the bowl rim is parallel to the stem. Illustrations of Dutch bowl types appearing during and after the writer's Louisbourg study (e.g. Brongers 1964a-b, passim; Friederich 1964a-d; 1970; Douwes 1964; Atkinson 1972d) illustrate nothing like this example, nor were any seen by the writer in visits to Dutch and Belgian museums in 1968 and 1969 (although not published until 1971, the manuscript of the Louisbourg pipe report had been written by early 1966).

The theory evolved by this writer (I. Walker 1971c: 111) was that this bowl-shape was an innovation in The Netherlands in the 1680s which did not catch on among the Dutch, who apparently had a conservative tradition about how their bowl rims should lie in relation to the stem, but which had been introduced into England by Williams's troops. Only the one bowl of this type was found in the Louisbourg material studied, but two stem-fragments with the same stem-decoration, one of them also having enough of the bowl to show the same heel-mark, were noted and in all cases they were in the earliest deposits at Louisbourg and probably datable to the 1720s (I. Walker 1971c: 106, 107 fig 38, 111, 108 fig 40 centre). These scattered occurrences in the earliest Louisbourg contexts would suggest any major period of popularity had been some time earlier.

So far as this writer is concerned, the theory is still as tenable now as when first formulated - if it is still necessary to invoke Dutch influence to explain the appearance of the type 9 series. However, the evidence in the preceding pages, at least to this writer's mind, indicates there is no need to invoke foreign influence and that at least the West Country type 9 form was a natural evolution from the earlier chinned bowls. Precisely where the first type 9 shape evolved remains unknown, though there is really no reason to believe it had to start with one specific person; the general similarity over the extensive West Country area - Bristol, Wiltshire, and Hampshire - both of chinned bowl shapes and type 9 shapes suggests there was enough contact within the area to see that ideas spread and interchanged rapidly. Atkinson (1965c: 87-8, 93-4, rev ed 1969b; 1970a: 186) believes Thomas Hunt of Marlborough introduced the new shape there ca.1685, and the Durham Thomas Hunt pipes indicate he was heading towards that shape by 1684 or shortly before.

In conclusion, therefore, it is suggested that the West Country type 9 shape evolved there in the 1680s from the West Country chinned bowls of the mid-C17 made famous by the Gauntlett family, and that no outside influence was involved.[62] Whether West Country type 9 influence moved east to London and to other areas influencing bowl shapes is uncertain, but West Country type 9 bowls do occur in London and the Home Counties and the specifically

London-Home Counties type 9 form seems to appear only ca.1700. Thomas Hunt material at Durham in a context with a terminus ante quem of 1684 might explain the adoption of type 9 features in the North-East from ca.1680 onwards. However it spread, the type 9 forms did so rapidly and widely throughout England in the period 1680-1700.

Before passing on to C19 material, there are three finds of Bristol pipes probably belonging to the later part of the C18. The first is a bowl from excavations at Cirencester with OKELY in raised moulded capitals running down the right side of the bowl at an angle somewhat past the vertical (Oswald 1960c: 64 fig 11,7). There were four Okelys recorded as pipemakers in Bristol between the 1730s and 1820s, but as the form of mark recorded here is not otherwise known among Bristol makers and does not have the first name or initial it is not easy to decide which of the four made it. (This form of marking seems rare, but examples marked SAMUEL up the left side of the bowl and BENBOW down the right are products of Samuel Benbow of Stony Stratford, Buckinghamshire, who was working 1684-1709 (Oswald 1970b: pl 212, p.244). A C19 version of this form of marking, with the maker's surname and place of work, is known from NE England (Parsons 1964: 246 fig 3,e, 248, 253).)

The bowl shape, however, would suggest the later C18, and is similar to ones from North America attributable (see section on trade abroad) to Anna Viner, who was manufacturing pipes by 1775 and continued to do so until 1805, and to ones from Bristol (see below) produced by Samuel Richards II and/or III, who between them cover the period from the 1770s to the 1810s in Bristol. This would mean that the first John Okely (A 1723, F 1732, fl 1739) must have been too early unless he continued for appreciably longer than we have evidence for; on the other hand it could be any one of the second John Okely (F 1768, fl 1798, D by 1800), his wife Martha (fl 1800-12), or his son William (working with mother 1806-12, F 1809, fl 1813-27 Bristol and perhaps in London 1830s with widow continuing his business into 1850s). Some Okeley pipes from the unpublished Water St-Holister kiln site in Bristol, probably products of the first John Okely, suggest he latterly adopted rather elaborate cartouches (figs c-e), but as noted above his dates appear to be too early for this pipe from Cirencester. Oswald (1970b: 240, probably quoting K. Marochan, the kiln excavator) says that the second John Okely was a son of the first, which might indicate a family tradition of distinctive markings; however, if the two were father and son the second John Okely chose to take his freedom on grounds of marriage (to Elizabeth the daughter of Bristol pipemaker Thomas Jenkins F 1733 fl 1754, father of Joseph Jenkins noted earlier) and not on patrimony (presumably Elizabeth Jenkins was Okely's first wife - as noted above, later his wife's name was Martha; the first reference noted to Martha is in 1787 when her husband and she took an apprentice). (No documentary evidence to indicate relationship between the two John Okelys is known to this writer; however, Marochan's research into the Okely kiln-site and property may have turned up such evidence.) What are probably also products of the first John Okely have a simple mark comprising the letters IO surmounted by a star impressed on the bowl facing the smoker (figs a and b) in the style used by the Robert Tippets and a number of other Bristol makers of this general period (this also occurs on bowls with the rather elaborate cartouche noted above); if the two Okelys were indeed father and son one would have an interesting development in bowl shape and method of marking from the earlier C18 possibly into the early C19.

The two other finds are one probable and one certain product of *Anna Viner* (fl 1775-1805). The former is a stem fragment with the name VINER in a band round the stem, with a band of scallop-shell decoration above and an empty band and then a band of diaper pattern enclosing fleurs-de-lis below (fig *c*) from Barrow Gurney, just beyond the modern Bristol city boundary to the SW. Although there is no initial with the name, this form of decoration is much more likely to belong to the later C18 than to the mid-C18 and thus less likely to be a product of Anna's husband, George, who is known to have died ca.1775. The latter find is a bowl with VINER stamped on it facing the smoker and A/V on the heel sides from Bath (Brown and Sneddon 1973: 296). Exactly the same form of bowl has been found in North America (see p. 679 below).

At Devizes there are three bowls which can be attributed to one or other, or both, of the two Bristol makers *Joseph Edwards sr* (F 1747, fl 1792, prob. D by 1794) and *Joseph Edwards jr* (F 1774, fl 1823), though the argument for their identification is somewhat involved and as two of the bowls are unprovenanced and the third possibly from Bristol it is not certain that their presence in Devizes Museum indicates Bristol trade. The shapes of all three are typical enough of the general London-derived type 9 form which spread over England in the later C18, including to Bristol by the 1770s (see pp616-9 above and pp636-8 below), and all have basically similar markings. One of the two unprovenanced examples has the letters IE surmounted by a floral spray on the right side of the bowl and a floral or branch motif on the left; the other has similar designs except that the letters have a floral device below them. The third example, that possibly from Bristol, has the same letters and a branch design below them (though on this example very vaguely moulded) on the *left* side of the bowl, and a very vague pattern but no letters on the right side.

The suggestion that these are of Bristol origin and produced by one or more of several Edwardses with christian names beginning with J who were working there in the later C18 and earlier C19 (the general period indicated by bowl form and style of marking) is based on the occurrence of a bowl similar to the unprovenanced Devizes specimen with the floral device below the letters, though with no motif visible on the opposite side of the bowl, at a site in Quebec province founded in 1779 where a typical London-derived bowl with the letters IE in a cartouche on the right side and a branch pattern on the left also occurs (the site, Fort Coteau-du-Lac, also has C19 Ring of Bristol pipes - see below, section on trade abroad). This IE cartouche example is in turn paralleled among Bristol finds, though it has not been noted that one mark occurs there with the branch design on the opposite side of the bowl.

In view of the similarities among all these examples it seems reasonable to suggest they are all products of the same maker, or at least of the same family. The suggestion that the Joseph Edwardses are the most likely makers rests largely on the elimination of two other makers with these initials at this time as being less likely, though some independent hints can be adduced to further support the suggestion. The two other possible makers with the initials IE known at this time are Jonas Edwards II (F 1747, fl 1754 Bristol, fl 1774-84 London) and John Edwards II (F 1784, fl 1784-1812 London, fl 1818 Bristol) and they can be excluded not only because they were in London for most or all of the period in question but also because they never appear listed as running a business and must always have been journeymen working for other makers (see entries in Appendix IX). This leaves the two Joseph Edwardses, whose products would no doubt have been very similar, particularly as directory entries for 1791 and 1792 indicate the two were in partnership as Edwards and Son. Joseph jr is among four makers signing an advertisement dated 1799 announcing they produced for the American among other foreign markets (advertisement found among pages of the Bristol Pipemakers' Guild Book); one of the others signing was Anna Viner (fl 1775-1805) whose pipes have occurred in post-American Revolution sites in Quebec province and New York state (see p.679 below).

On these grounds, therefore, it seems reasonable to identify all these IE-marked pipes as products of one or both of the Bristol Joseph Edwardses, though as noted above the unknown or uncertain provenance of the Devizes specimens makes it impossible to say whether they indicate Bristol pipes were actually being traded into Wiltshire at this time.

As has already been noted in Section VI the Bristol pipe industry, after having almost died at the end of the C18, revived in the early C19 and reached a peak in the 1840s and 1850s before collapsing dramatically in the 1860s and being virtually dead by 1900. This revival is reflected by a certain number of pipes found in the area under study here. By the C19 it was common for pipemakers to mark their products with their name and place of work, the most frequent manner - one which may have originated among Liverpool or possibly Chester makers early in the second half of the C18 (4: II and III) - being to mould-impart the name on the left side of the stem and the place of work on the right. The name of the particular pipe style, or some topical slogan designed to appeal to the market, were also moulded or stamped on the stem of the bowl.

One of the earlier C19 Bristol pipe-fragments is part of a stem at Stroud (from Slad NE of Stroud) the inscription on which reads -TO·TRAD- on one side and -KLY·*·BRI- on the other which must either be a very late product of the later John Okely (see above) or, more likely, a product of Martha or William Okely who as indicated above cover between them the period 1799 or 1800 to 1827 in Bristol. The fragment of the name Okely is interesting because it suggests the surname was being spelt Oakly at this time. Eighteenth-century evidence consistently prefers the spelling Okely and the C19 poll-books give Okely twice and Okeley once, but trade directories in the C19 frequently use Okeley or Oakley; in 1812, as noted in Section VI above, an apprentice entry starts the spelling "Oak-" which is then crossed out and the spelling Okeley used.

What the slogan on the opposite side of the stem was is not absolutely certain: two other stem-fragments at Stroud (unprovenanced) have the partial inscriptions SUCCESS TO - and - BRISTOL* and a third fragment at Stroud (from Leonard Stanley) has SUCCE- and -OL, and these are probably parts of similarly-marked pipes. The slogan most likely read in full SUCCESS TO TRADE, which would have been topical at the beginning of the C19 when trade embargoes on both sides of the Atlantic from 1807 brought serious setbacks to British merchants and were not abandoned until 1812; this might be particularly relevant to Bristol, whose trading prosperity by the end of the C18 was rapidly slipping. Alternatively, a slogan such as "success to trade" might be associated with the beginning of the free trade movement in the 1820s; either dating would agree with the Okely dates. That such a slogan was topical last century is indicated by its occurring, along with the slogan IRELAND FOR EVER, on a bowl - unfortunately unillustrated - from an excavation in Co. Dublin (Rynne 1967: 34 n.6). (I am indebted to suggestions from P.M.W. Curtis of London, who answered an appeal for information from the writer which appeared in the 20 April 1972 issue of Country Life; also to E.P. Thompson of the Centre for the Study of Social History, University of Warwick.)

The major Bristol pipe-manufacturer in the C19, or at any rate in the earlier part of the century, appears to have been the Ring family. So far, they are the only Bristol makers known to have exported to North America in the C19 (see section below on trade abroad). They first appear as pipemakers in 1803 and continued until 1883 or 1884. Between 1816 and 1849 the Ring firm advertises itself as an "Ohio Tobacco-pipe manufacturer": stem fragments marked RING BRISTOL/OHIO have been found in North America and one marked -G BRISTO-/OHIO is in the collections at Stroud (From Nailsworth south of Stroud). An apparent characteristic of an Ohio pipe was that it had between the inscription and the bowl a "barber pole"-like spiral ribbing edged at either end by ribs encircling the stem at right angles to its axis (fig b); one Ring Ohio pipe from Canada has a plain bowl but another, also from Canada, had a fragmentary bowl with T/D on the sides of the spur (fig d) indicating there must have been different bowl forms associated with the firm's Ohio pipes (cf I. Walker 1966d). Further, a spirally-ribbed stem fragment again from Canada with its inscription missing but almost certainly from an Ohio pipe had a common C19 fluted bowl attached (fig g) while a fourth Canadian Ring Ohio stem fragment came with bird's feet-like marks above and below the inscription (fig c), all of which suggest a variety of Ohio pipe forms (for more details see section on trade abroad). A stem fragment with spiralled decoration at Gloucester (from Edgehill, presumably the Edgehill in Warwickshire between Warwick and Banbury) may belong to an Ohio-style pipe and perhaps to one of Ring's products; however, a 1900 price-list of Scottish-made pipes notes (Anonymous 1900: 52) that the Glasgow firm of Waldie was still listing Ohio pipes, so as a style Ohio pipes clearly had a long life and were not an exclusively Ring product.[63]

Another form of stem decoration used by Ring and again known from marked North American specimens is similar but has the ribbing running in lines parallel to the line of the stem (fig h). The inscription here, however, merely reads "Ring/Bristol". A stem fragment with this type of ribbing but with not enough length surviving to show whether there was any stem inscription is at Tewkesbury.

Again at Stroud, there is a stem marked R C RING & C°/BRISTOL from Frocester. This particular Ring mark dates the fragment to the period 1862-1883 or 1884 when the last generation of the Ring family to run the firm, Richard Charles Ring, was in business.

Ring pipes in the Bristol collections are unfortunately rare, and in fact Ring products are much better known from finds in North America.[64] In no case so far has a Ring-marked bowl or a bowl attached to a Ring-marked stem appeared with any lettering on a heel or spur representing a mark of the firm, but a number of bowls or bowl fragments with R/R on their spur are at Stroud and one of the same style is known from Port Royal, Jamaica (see below, trade abroad), and it is tempting to suggest these are the products of the Ring firm either under Richard Charles Ring (1863-83) noted above or under Richard Franks Ring, whose name is associated with the firm from 1813 to 1849. The Stroud museum bowls come from Stroud itself, from Slad (NE of Stroud), Leonard Stanley and Eastington (both west of Stroud), Paganhill (on the western outskirts of Stroud), Dudbridge (also on the western outskirts of Stroud - two examples), and Brimscombe (2 miles SE of Stroud), and there is one unprovenanced example and also a possible example from Kings Stanley (west of Stroud). One of these bowls has the open hand and eye masonic emblem; masonic emblems were very popular on pipes last century, no doubt being used with the idea of appealing to freemasons, who may also have used such pipes in their lodge meetings. Another of these bowls depicts a curved long-stemmed pipe on the left side of the bowl and a wine glass on the other.

Similarly-initialled bowls and bowl fragments, some with masonic emblems similar to that on the example noted above, occur frequently in collections in a restricted area of South Devon, being noted at Brixham, Dartmouth, and Totnes, at which latter they occur both in the local museum and the A.S. Brook Collection. An example also occurs at Barnstaple, in the St Anne's Chapel Museum, in North Devon.

The two Brixham examples are C19 TD-shape bowls, plain except for leaf decoration along the mould-lines on the front and back. At Dartmouth there is one example with a bowl undecorated save for the leaf motif along the mould-lines; one fluted bowl with mould-line leaf decoration; one with the masonic motif of the eye, heart, and open hand decorated with foliage; and one fragment of a late Broseley-like keel and heel - a skeuomorphic representation of the large Broseley heel appearing from the second half of the C17 into the earlier C18 with its extension merging into the bottom of the stem (the "keel"). At Totnes the museum has three examples of the initials occuring on an octagonally-faceted, or fluted, bowl; other bowl fragments in the collection suggest the rims of these bowls, above the termination of the facets, had a surround of stars in a narrow band. There is also one specimen, possily two, with plain C19 TD bowl-shapes but with the plane of the bowl rim angled away from the smoker instead of being, as is usual, roughly parallel to the stem line. The A.S. Brook Collection example has the masonic motif of the rayed eye over a heart. The Barnstaple example also has a masonic emblem; a rayed eye on either side of the bowl, on one side over a rather surprised-looking animal of the deer variety and on the other over a horn hanging from a hook. Both sides have liberal foliage decoration.

At first sight it seems difficult to suggest with any conviction that these Devon examples are likely to be Ring of Bristol products, but with the advent of the railway possible markets lay open much farther than would have been practical to reach by other methods. The possibility of a local maker in South Devon must be borne in mind, and indeed there was at least one, in

Torquay - Watcombe - who was active in the second half of the C19 (information at Torquay museum); he appears to have specialized in producing pipes in red clay, and several of his products are in museums in the area. On the other hand, there is a Watcombe product in the museum at Abergavenny which while it may have reached there through some holiday-maker might also be taken as indicating that if Watcombe products could travel that far Ring pipes could do likewise. As will be noted below, one Bristol maker was supplying pipes, and custom-marked ones at that, to customers at Devonport - even farther distant from Bristol than Brixham, Dartmouth, and Totnes - as late as the last decade of the C19. One agent in any of the three towns where these R/R-marked pipes have occurred could easily have been responsible for supplying local tobaconnists in the surrounding area if Ring had been able to sell him a shipment. However, Oswald does list an Exeter maker with these initials, Robert Reynolds, who was working in 1850; and while no R/R-marked material was noted at Exeter or Topsham where one might have expected it from an Exeter maker, it must be admitted Reynolds is at least as likely a maker to have supplied these pipes in South and North Devon as Ring.

Pipes with R/R-marked spurs also occur at Wimborne Minster, at Shaftesbury in the Local History Museum there, at Salisbury, and at Marlborough. Atkinson (1970c: 213 and 215; 1971: 188; cf 1972b: 76) notes they are widely distributed in Wiltshire and Hampshire, bowls associated with the mark being either plain or having a simple leaf design. Atkinson dates them to the middle decades of the C19 and suggests Richard Redwin or R. Readerson both of Basingstoke in Hampshire (directory dates of 1847 and 1852 respectively) as possible manufacturers.

The question of identified R/R-marked pipes is thus complicated, and only the discovery of pipes with this mark and their maker's name also are likely to be of help. One can allow at least some of the Hampshire and Wiltshire distribution to be attributed to either or both the Basingstoke makers; and with them one can place the Shaftesbury material noted above, as Shaftesbury is only just over the Wiltshire border into Dorset, and that from Wimborne Minster near the Hampshire-Dorset border. On the other hand, the Stroud examples are more convincingly attributable to Ring and Bristol not only because of the relative proximity of Stroud to Bristol but because other definitely Bristol-made pipes of this time, including Ring products, are already known from the area. The Marlborough examples are quite frequent, but as there are no pipemakers known there in the C19, or indeed after ca.1750, they must come from outside (Atkinson 1965c: 88, 94, rev ed 1969b). Atkinson indeed suggests pipes at Marlborough at this time were coming from Bristol, but specific identifications are at present lacking, and Basingstoke is nearer to Marlborough than is Bristol (cf first additional page of 1969b rev ed).

The Devon examples pose a neat problem of identification, and while this writer would like to hazard a guess at their being Ring products on grounds of some stylistic similarity to the Stroud material and the known supply of Bristol pipes to Devonport, even farther away in South Devon and at an even later date than Ring's time, it must be conceded that no definite attribution can be made at present. (See FIG 159 for a distribution map of these Ring and possible Ring products.)

As already noted in 5: I, the landlord of the Angel Hotel, Abergavenny, was buying pipes from Ring in the 1850s and 1860s, along with pipes from the two Southorn businesses in Broseley and from Spooner's Cambrian Pipe Factory at Tredegar. The museum at Abergavenny has marked Southorn and Spooner products but no marked Ring pipes, though there is probably no significance to be attached to this lack other than the vagaries of chance. Ring's were consistently supplying the Angel with 19-ins pipes according to the landlord's ledger-book; in 1860 the pipes are called "Straws", a term known to have been used by the Southorns, and in 1862 and 1863 (and 1864, under the guise of "Do") they are called "Broseleys" indicating quite open plagiarization of the name of that famous centre. Ring's "Straws" and "Broseleys" presumably imitated Broseley pipe-shapes; unfortunately no definite examples of Broseley-style pipes attributable to Ring are known, but one thinks of the Broseley-style bowl at Dartmouth with the R/R mark noted earlier as a possible Ring product as being a contender for this attribution. Certainly Spooner was producing a bowl very similar to the Dartmouth example, as evidenced by marked examples at Abergavenny. The recovery of pipe-fragments wth Broseley-like heels and keels during slum clearance in Lamb St, part of the St Jude's pipemaking ghetto in Bristol last century (see Section VIII below), suggests other Bristol makers besides Ring's were plagiarizing Broseley shapes, for Ring's were one of the few Bristol pipemaking firms last century not in St Jude's.

In 1883 or 1884 Ring's closed and the firm of Hawley, who were already a pottery concern on Temple Back, appear as pipemakers, perhaps taking over the Ring business. They continued as pipemakers only until 1901, but evidently contrived to sell their pipes quite widely (FIG 159). A fragment marked HAW-/-OL is at Stroud (from Dudbridge) and another fragment marked HAWLE-/-STOL came from the Ross-on-Wye area. A fragment marked Hawley and Sons was found during excavations at Donyatt in south Somerset (Coleman-Smith and Pearson 1971: 6). Outside the South-West an example came from Wolverton, north Buckinghamshire (Oswald *in litt.* 16 June 1972) and much farther away, there is another, marked Hawley and Son, in the City Art Gallery and Museum at Bradford in Yorkshire (Oswald *in litt.* 5 May 1968).

Other C19 Bristol material observed by this writer while visiting museums and collections are a stem fragment of which only one side survives with the letters -STOL at Stroud (from Petchcombe, 1-1/2 miles north of Stroud) and a stem fragment with the entire word BRISTOL on one side in the A.S. Brook collection at Totnes and presumably with the maker's name on the opposite side though as the fragment was in an unopenable case the maker could not be ascertained.

As noted in 2: VII pipes were recovered during demolition in Lamb St, Bristol, which are almost certainly products of the firm of Thomas John Corcoran and Co (fl 1890-99 and 1904) who worked at 14 Lamb St 1892-99. Among the pipes found were ones rubber-stamped on the bowl with the names of the Royal Albert Hotel, Devonport, and the White Swan Hotel, Swansea. This form of marking was apparently relatively widespread (see 2: VII), but Corcoran did advertise just such personalization of his products in 1892. What is interesting here is that even as late as the last decade of the C19 at least one Bristol pipemaker was managing to get business as far away as Devonport - 100 miles distant - and Swansea. Presumably it was railway transport that made such trade possible, though it is remarkable that Corcoran secured business at Devonport when there were several Plymouth makers at this time (Oswald 1970a: 140 and 142, 131 fig 54,25).

One other pipemaker may be mentioned here - William Henry Pardoe. Pipes made by this business have been found in London and at Wolverton in north Buckinghamshire (Oswald *in litt.* 1 December 1970). As noted in Section VI above and also later, William Henry Pardoe is recorded as a pipemaker in Bristol in the 1840s and 1850s, and the business continued at least into the 1860s for in 1863 a C. and G. Pardoe is noted at the same address. The problem is, however, that this business appears to have been a branch of the William Henry Pardoe Nantgarw pipeworks near Cardiff, which William Henry founded in 1833 and ran until his death in 1867. The Nantgarw business continued until 1920. It is therefore not clear whether the Pardoe pipes in question are Bristol products of Nantgarw ones; this writer has seen pipes with "Nantgarw" on one side though with no maker's name on them, but has seen no Bristol pipes which could be attributed to the Pardoes. (The Pardoe family, though originally from Derby by way of Worcester and Swansea, had been in Bristol from 1809 to 1821, William Henry's father Thomas being a ceramics painter and in independent business as an enameller in Bristol 1809-21; presumably Bristol connections were retained.)

What might be called other aspects of the Bristol pipe trade within England and Wales have been noted in Sections III and V above, the apprenticing to Bristol pipemakers sons of pipemakers from outside the city and the migration of Bristol pipemakers to other parts of the country to set up business there.

In the former category only five sons of non-Bristolian pipemakers were apprenticed to pipemakers in the city, three from north Somerset, one from Hereford, and one from London. Of the north Somerset apprentices, two came in 1670, one being Joseph Butt son of George Butt of Stratton on the Fosse discussed earlier and the other being John Whitcacre(?sp) son of John Whitcacre pipemaker at Chilcompton, only a mile from Stratton. The third is John Hockaday son of John Hockaday pipemaker at Portbury, who was apprenticed 1692. The Hereford apprentice is William Purton son of John Purton, who was apprenticed 1714 and the London apprentice George King son of John King "late of city of London" apprenticed 1740.

As noted earlier, Atkinson has suggested that with the growth of the Bristol industry in the mid-C17 members of well-established pipemaking families there left to set up business in the smaller country centres, where they took apprentices and thus started local industries. However, though pipemaking spread rapidly as a local industry in the second half of the C17 and especially in the West Country (Oswald 1960a: cf 41 fig 15 and 43 fig 16) and Bristol as a swiftly-emerging major pipemaking centre is the logical source for makers spreading into the surrounding areas, there is extremely little evidence for such movement.

As has already been shown, there appears to be no evidence that the Marlborough Thomas Hunt had any filial connection with either of the Bristol Hunts, and indeed it has been argued above that the Hunts came *to* Bristol *from* Wiltshire, not vice versa. In the case of the Butt family discussed above there is again no evidence to suggest they came from Bristol, and the same applies to the Howell family. The Taunton pipe-industry, which was clearly a major one by the late C17 had no connection with that of Bristol less than 40 miles away to judge by the different bowl-styles they had evolved. A full exploration of this potential field of Bristol influence will have to wait the study of whatever evidence exists in the form of apprentice and freedom rolls, poll-books, and the like for centres such as Taunton and Gloucester and other places in the West Country, but the only known C17 case at present of a Bristol maker moving to another area is that of Thomas Cullimore, A 1641 F 1656 fl Bristol 1657, the son of a Bristolian, who was apparently in Gloucester by 1664 when a son was apprenticed to a pewterer in London (Oswald 1960a: 65; additional information from A. Oswald, *in litt.* 9 March 1971).

The apprenticeship of sons of three north Somerset pipemakers Bristol makers is no doubt a natural reflection of the proximity of Bristol as the natural industrial centre for the surrounding area, but the apprenticeship of a Hereford pipemaker's son to a Bristol maker is probably a reflection of the fame of Bristol as a pipemaking centre, for as discussed in Sub-section (c) below there was a flourishing Herefordshire pipe industry at least in the later C17 which traded pipes into Glamorgan, Monmouthshire, Gloucestershire, Worcestershire, and Warwickshire, if not farther. The apprenticeship to a Bristol pipemaker of a son of a London maker seems strange, particularly as this occurred in 1740 when the Bristol industry was beginning to decline and Bristol makers were beginning to go *to* London to seek employment (see below); however, the apprentice in question, George King, may have had Bristol connections as there was a Richard King F 1660, a William King F 1695/6, and a John King F 1739 fl 1754, all Bristol pipemakers.

As noted earlier, Joseph Butt did take his freedom in Bristol, though not until 1704. John Hockaday apparently found either pipemaking or his master and mistress, Edward and Christian Sinderling, not to his liking, for 13 months after having been apprenticed he was discharged with the consent of himself and his father, it being noted that he was to receive no benefit for the time he had been apprenticed. Nothing more is heard of John Whitcacre or William Purton; if they (or for that matter Hockaday) did continue in the trade they did not do so in Bristol.

The possibilities that the John and Thomas Hunt listed as journeymen in the ca.1696 oath of allegiance presented to William of Orange by the London pipemakers' guild were sons of Flower and Christian Hunt of Bristol and that the Edward Randall jr of Bristol A 1689 F 1699 was the Edward Randall noted in London in 1719 has already been discussed (p.621 above). If any of these three were indeed Bristolians then they would have been the precursors of a long line of C18 Bristol pipemakers who made their way to London; however, as already noted, all these identifications lack proof.

The increasing number of departures of pipemakers from Bristol from the 1730s onwards, nearly all of them going to the London area, has already been discussed at length in Section V above, and there seems no doubt the major cause was the progressive decline of the Bristol pipemaking industry from ca.1740 onwards to the end of the century. As noted earlier, not all makers left Bristol because they wanted to find fresh markets for their products, for John Frederick Bryant sr had left before 1753 because he disliked pipemaking (Bryant 1787: i); and as the century progressed and pipemaking over most of England declined it is unlikely that many pipemakers could find opportunities for their trade - John Frederick Bryant jr was certainly unable to find anything more than occasional temporary work in the trade (Bryant 1787: xv-xxiii). Undoubtedly, however, many of those pipemakers leaving Bristol must have done so in the hopes of finding better employment in their chosen profession elsewhere.

In all, the poll books record 35 Bristol pipemakers who left the city between the 1730s and 1780s though some (see above), like Bryant sr, returned. The overwhelming majority went to London or to places in the London area - Woolwich, Deptford, Southwark, Lambeth, and Brentford. Robert Ducy (F 1727) had moved to Tellisford SSE of Bath by 1729 and was still there in 1754 when he is last recorded in the Bristol polls. He is the first Bristol pipemaker to be recorded leaving the city for other parts, though as noted in Section V it is possible his family came from this area of north Somerset. Thomas Bickham (F 1754) had moved to Bath by 1774, but by 1781 he had moved onto Lambeth and was still there in 1784. James Huish was at Ashwick in north Somerset, only ca.2 miles SSW of Chilcompton and Stratton on the Fosse when he became free in 1781, though by 1784 he had returned to Bristol and was still there in 1812. (That there was something of a pipemaking tradition in this area of north Somerset is suggested not only by John Whitcacre and George Butt being active in the second half of the C17 at, respectively, Chilcompton and Stratton on the Fosse (see p.634 above) but by a recent discovery of pipe wasters dated 1780-1800 marked WATTS/OACKHILL [sic] recovered near a possible kiln-structure at Oakhill, less than a mile SSW of Ashwick (Arch. Rev. 7 (1972) 63 s.v. Ashwick, Oakhill). Who Watts was is at present unknown, but it is entirely possible that Huish could have been a journeyman with him.) Of the 35 migrant pipemakers the only other who did not go either temporarily or permanently to London is William James (F 1756) who was still in Bristol in 1774 but had gone to "Eaton" in Buckinghamshire (presumably Eton near Windsor) by 1781. (Curiously, John Frederick Bryant jr (Bryant 1787: xvi) notes that he got a month's work, apparently as a pipemaker, at Eton - Bryant does not give a date but one can deduce from his account it was ca.1773. Bryant did work ca.1777 for Samuel Richards jr, a Bristol pipemaker then working at Woolwich (1787: xix, xx, xxi), so if he had been working for James at Eton one might have expected him to mention he had been working there for a Bristolian also.)

How much one can talk of these 35 migrant Bristol makers as spreading Bristol pipemaking traditions in the later C18 is difficult to say. In the first place we have little idea of how many of them did continue in the pipemaking business, and secondly we have none of their products so far identified to compare with known Bristol-made pipes and indeed little Bristol material of this period at all.

The bowls from New York state (see section below on trade abroad) attributable to Anna Viner (fig a) which must date within the period 1778-1805 - they come from a site datable to 1778-1812 and Anna Viner, who was working by 1775, last appears in 1805 - are of London shape and not a development of the earlier C18 Bristol styles. Viner's use of her initials on either side of the heel, or alternatively the use of a heart symbol lying on its side, have no precedents in Bristol though they are common in London from ca.1680 (e.g. Atkinson 1965: 253 fig 6, 255 fig 7). Her placing her name inside a dashed circle on the bowl facing the smoker, and its being placed there by a stamp, are again foreign to Bristol traditions, though they become common enough in pipemaking centres in England in the C19. From finds elsewhere in New York state of bowls belonging to Anna's husband, George Viner (A 1740, F 1747, fl 1757, D by 1775) and Thomas Grant (fl 1740s, D by 1751) it is clear that the traditional Bristol cartouche on the side of the bowl was still being used in the mid-C18.[65]

A bowl attributable to either Samuel Richards I (A 1740, F 1747) if he continued working into the last quarter of the century or more likely a product of his son Samuel II (F 1774 when at Woolwich, returned to Bristol later 1770s, fl there 1812) is very similar in shape; it is plain, but has the initials S/R on the sides of the heel (fig a). A bowl of the same shape is that marked OKELY from Cirencester (Oswald 1960c: 64, fig 11,7) mentioned earlier and probably attributable to either John, Martha, or William Okely, a family of father, mother, and son working in Bristol during the period 1768-1827.

There is also what is possibly a late product of William Nicholas (A 1723 F 1730 fl 1775) of this London shape known from Bristol and (see below, trade abroad) Port Royal, Jamaica, but with the traditional Bristol cartouche on the side bearing the initials WN and the front and back of the bowl decorated with scroll-work (fig b). This example is of particular interest because if indeed it is a Nicholas product it must date at latest to the 1770s, which not only gives a terminus ante quem for the appearance in Bristol of this bowl-form but also for the fluted and ribbed and scroll-work decoration that becomes common on bowls of the later C18 and earlier C19 (cf, for example, the discussion on pp617-8 above on the Robert Tippet-marked bowl with this form of decoration and also floral designs and the problems of dating the Robert Tippet family and its products). It also suggests that though Anna Viner had dispensed with the traditional Bristol cartouche used by her husband in mid-century, its use did linger on into the 1770s at least to take initials. A probable William Nicholas bowl (fig a), undecorated apart from its cartouche with the initials WN but of a shape indicating London type 9 influence, was found at a site in New Brunswick (see below, trade abroad) - unfortunately its context is unknown, but it must be later than 1751 when the site was founded and could be as late as the last known reference to Nicholas, 1775. A probable George Ebbery pipe from the same site and showing similar London type 9 influence in its shape comes from a 1775-1833 context; the probable Ebbery pipe from a site in Jamaica is not accurately enough illustrated to be certain whether it too shows London type 9 influence though it may be so, and another example from a site in Michigan occupied ca.1715 to 1781 though fragmentary has a suggestion of London type 9 influence (for references see section below on trade abroad).

Another Samuel Richards bowl (fig b), ornately decorated and attributable to either Samuel II or Samuel III (F 1812, last Bristol mention 1817, at Swanswa 1830) is of rather similar shape though smaller, and has a large S R raised on the right side of the bowl (as well as the letters on either side of the heel) which is perhaps a memory of the cartouche tradition.

There is also a bowl probably datable to the later C18 from Port Royal (see below, trade abroad), with EDW/ARDS in a rather elaborate cartouche comprising a circle of dots with some sort of floral and fan or shell motif at the foot. Unfortunately, the upper part of the bowl is broken off, which prevents a definite identification of bowl form and may have removed letters in the cartouche above the surname. However, there may be some London type 9 influence in the bowl shape, and the relative elaborateness of the cartouche suggests a later C18 date. No Edwards marks of this form are known from Bristol, the closest similarity being perhaps with the marks of John Okely (figs d and e), which were also laid out in dots. Lack of a first name prevents definite attribution of the mark, but there are five possible Bristol makers in the second half of the century. These are:

Jonas jr; F 1747, fl Bristol 1754, fl London 1774-84;
John, brother of Jonas jr; A 1740, F 1747;
Joseph sr, another brother; F 1747, fl 1792;
John, not known to be a relative of the others; F 1784, fl London 1784-1812.

The highly ornate stem-fragment attributable to Anna Viner (fig b) at Bristol (from Barrow Gurney on the SW outskirts of the city) and the slogan-inscribed Okely family stems from the Stroud area described above are typical enough examples of C19 pipes, with nothing sufficiently distinctive to suggest specifically Bristol traits. As noted earlier, the London-derived bowl-forms of Oswald's type 11 series are spreading all over England in the last quarter or so of the C18 indicating the dying out of most regional forms. With their disappearance, the tracing of movements such as those of the Bristol makers noted above becomes almost impossible.

It may be suspected that Ducy, Thomas Bickham, Huish, and James made pipes where they settled, but little is known about those who went to the London area. John Frederick Bryant jr was recorded in the poll-books as a pipemaker when we know from his autobiography he had set up in the stationary business, suggesting that the appellation "pipemaker" in the poll-books simply refers to the trade in which the voter had originally taken his freedom; on the other hand we also know from Bryant's account that Samuel Richards jr, a Bristolian, had an apparently prosperous pipemaking business in Woolwich in the 1770s. We also know that Bryant had worked as a pipemaker when he could find such work, and the addresses given for Bristol pipemakers in the London area are frequently in known pipemaking areas (see Section V above).

Bristol pipemakers living in the London area appear to die out in the first decades of the C19, to judge by the poll-book entries: from a total of 21 in 1784 the number had dropped to three by 1812 and one by 1830. The three who did survive into the C19 - Isaac Bickman, Thomas Cole, and John Edwards - do appear to have set up in some sort of permanent occupation, for all had been in London from the 1780s at least: Bickmam and Cole had arrived by 1781 and Edwards by 1784, and it is Bickham who is still recorded in 1830. Edwards, however, ultimately returned to Bristol in the 1810s, for after being recorded at London in the 1812 polls he appears in Bristol in the 1818 polls. Of the Bristol pipemakers who made their way to London, however, only two are actually known with some certainty to have continued pipemaking there. The Samuel Lewis noted working in Southwark 1799-1805

(Oswald 1960a: 80 and Bloice in Atkinson and Oswald 1969: 211) is probably the Samuel Lewis F 1774 and working in London in that year, in Lambeth in 1781, and Southwark in 1784; while the William Russell noted in London in 1805 (Oswald 1960a: 91) is possibly the William Russell A 1757 F 1768 and voting from London in 1774, 1781, and 1784. It is just possible that the William Okeley [sic] noted in London in 1836 (Bloice in Atkinson and Oswald 1969: 222) is the William Okely working in Bristol first with his mother Martha and then by himself 1806-27; his wife is known to have been called Amelia, and a Mrs Amelia Oakley [sic] is listed in London 1850-57 to be succeeded in 1858 by an Alfred Oakley, presumably a son (Bloice *loc. cit.*). It is also possible that the William Lan(d)sdown recorded in London 1832-48 (Oswald 1960a: 81 and Bloice *loc. cit.*) is a son of the William Lan(d)sdown who became free in 1784 and voted in that year from London. All in all, however, there is no real evidence to suggest the migration of Bristol pipemakers in the second half of the C18 involved a spread of Bristol's pipemaking traditions.

One can, however, talk with some confidence of Bristol pipemakers establishing the industry in South Wales in the early C19. John Frederick Bryant jr in the early 1780s had travelled to Swansea in an unsuccessful attempt to buy a derelict pipemaking premises there because he knew the area to be a good potential market with no makers (Bryant 1787: xxvi-xxvii); and in the C19 at least three Bristolians succeeded where Bryant had failed. Nicholas Kennicott, a pipemaker who became free in Bristol in 1809 and who is recorded there 1810-12, had moved to Swansea by 1830, for the Bristol poll-book for that year lists him as a pipemaker resident there; and an Edward and Nicholas Kennicott, perhaps sons rather than father and son, are listed as pipemakers at Hafod, Swansea - the only Swansea pipemakers listed - in Hunt and Co's *City of Bristol, Newport and Welch [sic] Towns Directory* for 1848 and Scammell and Co's *Gloucester, Bristol and South Wales Directory* for 1853 (I am endebted to Swansea Public Library for the 1848 reference; they have been unable to find other references in surviving directories and voters' lists). The same 1830 poll-book lists a Samuel Richards of Bristol as a pipemaker resident in Swansea - this is presumably Samuel Richards III, F 1812, the fourth generation of his family to make pipes, but whose business (or whose family's business) is not recorded in Bristol after 1817.

That there was pipemaking in Swansea at the beginning of the C18 is suggested by a port book entry recording *The Queen's Peace* of Chester leaving Swansea for San Sebastian with a cargo including 12 gross tobacco-pipes (assuming the pipes had not originally been brought from Chester, which was a known pipemaking centre - see 4: IiI), and the derelict business Bryant had tried to buy indicates pipemaking there in the later C18; but the *New Swansea Guide* of 1823, illustrating the recent increase of the city's trade, noted (p.23) that whereas there had been no exports of pipes in 1812, 601 boxes of pipes had been exported in 1819. This latter comment adds weight to Bryant's observation in the early 1780s that Swansea was a good potential market and suggests indeed that Kennicott and Richards may have re-established the Swansea pipe industry if they settled there immediately after their last appearance in the Bristol trade directories.

Also listed in the 1830 Bristol poll-book is a William Roberts, a pipemaker voting from Cardiff. This Roberts is otherwise unknown in the

Bristol records and his freedom (if he ever took it) does not appear to have been recorded, but there was a whole family of Robertses pipemakers in Bristol in the earlier and middle C19 and William may have been one of them who decided to seek his fortune elsewhere and settled in the rapidly-rising port of Cardiff. In any event, his presence in South Wales again emphasizes the connections between Bristol and that area.

Further, the Pardoe family who took over the Nantgarw porcelain and pottery factory near Cardiff ca.1833 and concentrated on pipemaking until the factory closed in 1920 returned there from Bristol. The family were originally from Derby and Thomas Pardoe (B 1770) had been a ceramics painter there and at Worcester (and perhaps Staffordshire) and Swansea before setting up in Bristol as an independent enameller from 1809 to 1821, when he went to Nantgarw. That business failed the following year and Pardoe died a year later; but his son William Henry, who had worked at Nantgarw with his father and then returned to Bristol, was still interested in the ceramics trade, for in 1826 he set up in Cardiff as an earthenware painter with his own muffle-kiln and also as a pipemaker (a load of pipeclay arriving in Cardiff in 1826 from Teignmouth is probably for him). He was still in Cardiff in 1830 when he is described as a dealer in china and glass as well as a tobacco-pipe manufacturer, and another reference to him of about this time refers to him as a grocer as well.

Shortly after this, however, as noted above, he had moved his pottery and pipemaking business to Nantgarw and started to concentrate on production of the latter, running the business from then until his death in 1867. That William Henry Pardoe continued his Bristol connections, however, is indicated by his being listed as a pipemaker and potter at Avon St, St Phillip's, Bristol, in the 1840s and 1850s, to be succeeded there by C. and G. Pardoe listed in 1863. (The history of the Pardoe family and businesses is complex: see Jewitt 1878: I, 439-51; I.J. Williams 1932: passim; Nance 1942: 412-7, 480-7.)

(b) ABROAD (1) Introduction

The other aspect of Bristol trade which bears upon the subject is oversea trade, and it is in this field that Bristol's chief fame lies - cloth, the Cabots, tobacco, the slave trade, sugar, rum. The history of Bristol as a port has been dealt with by many writers in a still greater number of books; indeed, if one can make a criticism of historians writing on Bristol it is that they have concentrated more on the port than on the social history and growth of the city.

For the almost one thousand years of its existence Bristol has been primarily a port, with especial interest in the Atlantic seaboard - the first written reference to Bristol is in 1051 when two of the outlawed Earl Goodwin's sons fled by ship from Bristol to the friendly Norse settlers of Dublin, while 13 years later Harold son of Goodwin, now restored to favour, sailed from Bristol during his series of expeditions against the Welsh. That there were Dublin connections with the Bristol Channel area by ca.1000 is suggested by the Dublin mint's modelling coins after those made at Bath and Watchet and by a Gloucester and a Bath coin hoarded about this time in different places in Ireland. The establishment of a mint at Bristol at the beginning of the C11, although known only from numismatic evidence, suggests a trading post of some importance, perhaps associated with the shipping of slaves to Ireland, referred to in the second half of the C11 as "a very ancient custom."

If the Irish trade is Bristol's oldest, that with France in wines and Flanders in woad had been established by the end of the C12, and by the end of the C13 trade with Spain and Portugal is noted (cf Quesne-Bird 1972a). Trade with some of these areas still forms part of Bristol's economy - wines from France and Iberia and Dublin-made Guinness for the South-West (the rest of England south of the Wash has to make do with London-brewed Guinness (Guinness Ltd in litt. 4 September 1968)). This traditionalism is a recurrent theme in Bristol trading history, as is its tendency to import more than it exports, a feature noticeable from medieval times. (Archaeologically, the English wine trade with western France is probably reflected in the finding of Saintonge wares from the area of France - ca.50 miles north of Bordeaux - from English sites particularly on the English and Bristol Channels and as far north as Yorkshire. Bristol is among these sites (K.J. Barton 1963: 212, 214 and refs). The extent of medieval trade between Bristol and Ireland is being revealed by the quantity of Bristol-area pottery being found in the major excavations now in progress in Dublin (Ó Ríordáin 1969: 25), and the occurrence of C12-C13 Ham Green ware from the kiln near Pill at Dublin and Cork and of frilled-neck late C13-early C14 jugs from somewhere in the Bristol hinterland in considerable concentration in Co. Down and Co. Antrim and scattered elsewhere in eastern Ireland has already been noted (pp590-1 above); but medieval trade has left a more remarkable archaeological record - the appearance of Dundry oolitic limestone, and occasionally other Cotswold oolites, in buildings of the period ca.1175-1400 in south and east Ireland within easy reach of sea and river transport, from Drogheda north of Dublin to Kinsale west of Cork (Waterman 1970; cf M.Q. Smith 1970: 15).)

In the C15 the evidence which survives suggests Bristol was appreciably less prosperous than it had been the previous century, but a sign of broadening maritime horizons was the contacts with Iceland to the north and Madeira and the Mediterranean to the south, culminating with the first recorded voyage of Atlantic exploration from Bristol, one of 1480 to find the island of "Brasylle", the first of several and all well before the Cabots. Indeed, there is good evidence that Bristol sailors, who like Columbus had probably heard of the New World through their Iceland contacts, reached North America several years before John Cabot's voyage in 1497. Between then and 1509, when Sebastian Cabot voyaged as far north as Hudson Bay and then well south along the American eastern seaboard, Bristol merchants attempted to exploit the newly-discovered lands, but nothing permanent resulted apart from the Newfoundland fisheries, and indeed from 1500 onwards Bristol appears to have been declining from its place of preeminence, Norwich taking its place as the wealthiest city in England after London (the preceding paragraphs are based on Carus Wilson 1933a; 1933b; 1937; Little 1954, 1967 ed; Williamson 1962: chapts I and II; Sherborne 1965; Quinn 1968).

As the C16 progressed Bristol further declined. Iberian ports had been replacing French ports in importance in Bristol trade following England's loss of her French possessions in the middle of the previous century, and as late as 1580 a large percentage of Bristol ships were clearing for Spain, but the increasingly strained relations between Spain and England, culminating in the Armada in 1588, broke that trade. What French trade there was was disrupted at this time by the French Wars of Religion, and Ireland was in revolt at the end of the century. In the late C16 therefore Bristol was in a poor state economically (Latimer 1900: 1; Little 1954: 106-7, 1967 ed).

Bristol's chief interest lay in finding permanent, stable markets for her goods and similarly safe sources for imports for her traditional manufactures. Cloth and lead were Bristol exports ready for a market; for imports Virginia was suggested as a safer source of the goods hitherto obtained from France and Iberia - olive oil, hides, citrus fruit, wines, and wood. Train oil from cod taken in the Newfoundland fishing was suggested as an alternative to olive oil from Spain for the traditional industry of soapmaking, though the resulting smell was such that legal action was taken to enforce a return to olives. For these reasons, therefore, Bristol even in the depression at the end of the C16 did give some support to voyages of exploration to the New World, for example those of Sir Humphrey Gilbert.

The first half of the C17 appears to have been a time of fluctuating, and on the whole mixed, fortunes for Bristol. Peace with Spain following the accession of James I in 1603 resulted in sailings to and from Iberia and the Atlantic islands returning to 1560s levels by 1610, and in 1618 trade was resumed with the Levant. Between the 1590s and 1620s John Whitson traded with Danzig, Hamburg, Amsterdam, Ireland, France, Spain, Portugal, Italy, Greece, and on one occasion Barbary, and helped finance one voyage to New England (McGrath 1970: 11-12). However, customs revenues for the period 1614-20 place Bristol only third among the outports, with an average income of £3,706 compared to £7,259 for Kingston upon Hull and £4,533 for Exeter (Newcastle upon Tyne came next after Bristol, with a figure of £3,310); and while there appears to have been a boom following the peace with Spain in 1604 - the Society of Merchant Venturers was reorganized in 1605 - and up to ca.1610-12, this appears to have been followed by a prolonged recession, the cloth trade, for example, declining until 1628-29 and thereafter fluctuating, never reaching before the Civil Wars anywhere near the levels of the middle of James's reign. Bristol trade was at a particularly low level in the period 1625-29, during the wars with Spain and France, and though there was some recovery in the 1630s, the Civil Wars, 1641-49, with their two sieges of the city and protracted rebellion in Ireland, set the city and its trade back once more, though the absence of port-books for this period makes an accurate estimate of the extent difficult (Stephens 1975: 156-60; McGrath (ed) 1955: xviii-xxi, 1968 ed). In addition, the increasing number of monopolies granted Londoners up to the end of the 1630s affected Bristol trade and industry adversely (see Section I above).

Contemporary comments, however, suggest an underlying recovery in the first half of the C17 from the nadir of the late C16: as early as 1611 Bristol was referred to as the second city in the kingdom and in 1634 an observer noted that this "rich city" was thronged by "Londoners, Irish, and others" for the January and July semi-annual fairs and concluded the city "to be reputed inferior to few except London" (both quotations in Bridenbaugh 1968: 129 n.17 and 129-30). It is true that Bristol's own attempts to found colonies in Newfoundland and Maine met with indifferent success and that Capt James, though he explored much of Hudson Bay and the bay to which he gave his name, failed to find the North-West Passage; but safe and stable markets in North America and the West Indies were opening up, the valuable London tobacco monopoly was revoked in 1639, and Bristol was well situated geographically to take advantage of the expanding English colonies (for the early C17 Newfoundland colonies partly or wholly backed by Bristol see Cell 1969: chapts IV and V). It is against this increasingly favourable background that the Bristol pipe industry commenced and developed. (The Bristol settlement and its successors at Pemaquid, Maine (MacInnes 1939: 105, 151; 1965: 19-20), are at present being excavated - brief interim reports and studies have appeared (A.H. Young 1965; H. Camp 1966a; 1966b; 1966c; 1968; M. Camp 1966; also "Pemaquid Lost and Found", paper given by Mrs H. Camp at autumn 1970 conference of Council For Northeast Historical Archaeology, Ringwood, New Jersey). Brief exploratory excavations at Ferryland, Newfoundland, site of Lord Baltimore's settlement of 1621 and a port-of-call for the Bristol Newfoundland fishing fleet (MacInnes 1939: 242-3; Cell 1969: passim), have also been made (Harper 1960).)

In 1619, James I, wanting English settlers for Waterford in Ireland, which he was about to incorporate, advertised in Bristol for prospective settlers worth at least £500 and preferably £1,000. There is no evidence that anyone from Bristol was lured (Latimer 1900: 71), but it would have been surprising had some settlers from a city with such old-established trading links with Ireland not gone; and in fact one of the Englishmen kept in Waterford by the Irish because his trade was useful to them when most English were being expelled or killed during the 1641 rebellion was a Bristol pipemaker, Edward Abbott (Nott and Ralph (eds): 117-8, 172, 174), who must have settled there if not in 1619 then subsequently.

From the early 1650s, however, after the Civil Wars, and despite the First Dutch War and war with Spain, Bristol began a steady expansion both in trade and in industry (for trade see McGrath (ed) 1955: xx-xxii, 1968 ed; Stephens 1975: 160-1). About 1650 both the Bristol glass industry (Buckley 1925) and the tin-glaze earthenware industry (Pountney 1920: 4, 23-9; Pritchard 1926: 262) appear to have started - a tin-glaze fragment with the date 1647 is known from the site of the Brislington factory - and of course the pipemakers' guild was formed in 1652. By the early 1650s Bristol had regular sailings to France, Portugal, Spain, and the Mediterranean as well as across the Atlantic to Newfoundland, Virginia, and the West Indies; in 1663 a Carolinas settlement was given a charter by Charles II and a flourishing trade sprang up with that colony (Latimer 1900: 317-8). Despite a rapid increase in trade with Iberia, particularly in sherry, it was the New World trade, and in particular the Virginia tobacco trade which contributed most to Bristol's prosperity, and by early in the second half of the C17 Bristol was certainly the second port in England and disputing the title of second city with Norwich, whose size she was definitely to exceed by the early C18. Excavations at St Nicholas's Almshouses in King St revealed in a deposit of material datable to 1652-56 ceramics which gave some indication of Bristol's trading wealth. Besides the German stoneware, Dutch delft, and Hispano-Moresque wares relatively commonly found on C16 and

C17 English sites, Italian Montelupo maiolica, known elsewhere in England only from Plymouth, Exeter, and London; and Hamburg faience, not so far known from elsewhere in England, occurred (K.J. Barton 1965: 193). By 1677 Bristol as a port was second only to London in terms of customs duties collected, the 12 months ending Michaelmas yielding £50,946 from Bristol compared to £21,480 for Kingston upon Hull and £19,921 for Exeter, the next two ports on the list. Liverpool was still far down the list, with only £3,507 duties, but the overwhelmingly dominant position of London as the nation's first port is emphasized by duties there totalling £597,704 - almost 12 times that of Bristol (Latimer 1900: 383). This growth of Bristol trade was primarily based on her trade with the American colonies and the West Indies, together with a recovery of the Irish trade; for she did not increase her share of the Newfoundland fisheries, and her French trade, hit by embargoes and wars, brought in considerably less wine than earlier in the century (Stephens 1975: 160-1). Thus Bristol's increasing dependence on the American colonial and West Indian trade, and latterly specifically the latter, which ultimately was to contribute to her downfall at the end of the C18 (see below), was already becoming visible early in her growth.

The Huguenot settlement in the 1680s came from the area centred on La Rochelle, where Bristol had had trading connections since the Middle Ages, and a reflection on the conservatism of Bristol and its manufactures is that these settlers adopted (for in a number of cases it is known they had followed a different trade in France) the wool and cloth trade traditional to Bristol for centuries rather than introducing new industries (Lart (ed) 1912: passim).

The C18 saw the zenith of Bristol's fortune as a port, and for most of the century she was the second city in England both in size and wealth. However, signs of a relative decline compared to other ports were appearing in the second half of the century. The opening of the Africa slave trade in 1698 allowed Bristol to enter this trade, in which she expanded until ca.1740, but after this date Liverpool increasingly took over this field and by the end of the century Bristol's interest in it was virtually dead. The Virginia trade expanded during the earlier part of the century, but was in decline during the latter half and received a blow with the American Revolution from which it did not recover - Liverpool, then Whitehaven, then Glasgow, progressively took over the Virginia tobacco trade. Bristol's Newfoundland fishing trade declined as the century progressed, other West Country ports such as Teignmouth, Dartmouth, and particularly Poole taking over more and more - in the Christmas quarter of 1757 cargoes to Newfoundland from Poole included tobacco pipes (Mathews 1958: 48-9, 41-2; cf Andrews 1955: 107-8). Poole was also trading particularly with South Carolina and especially in rice, which is known to have been reshipped to Bristol from Poole (Mathews 1958: 48-9). The Irish, Spanish, and West Indies trade increased during the greater part of the century, but after 1700 British trade generally with Iberia declined (Mathews 1958: 25) and in 1778 Ireland was allowed to trade directly with the Plantations and also to export woolen goods without restriction (Ashton 1955: 156, 1961 ed) - hitherto all Irish imports and exports had had to be reshipped from English ports under the Navigation Acts - so that by the later part of the century Bristol merchants were relying dangerously on the West Indies trade, though it too was already showing signs of decline.

An examination of a study of Anglo-American trade figures in the earlier C18 (Andrews 1955) enables a closer study to be made of Brisol and other interests in the North American trade, and the extent of Bristol's specialization, and hence in part the delicate nature of its prosperity, becomes apparent. For example, total trade between England and North America was small - ca.8% with the eastern seaboard states and ca.15% with the West Indies. Thus Bristol even at the height of its prosperity was concentrating on only a small part of the English trading economy. Further, London, by far the most important of all the English ports, handled in 1715 67% of all North American (excluding West Indian) imports, the same percentage of North American exports, and 66% of the re-exports. London's share of the North American trade was greatest (100% in the Hudson Bay traffic, though this is an artificial example as in 1715 Hudson Bay had no exports recorded and took only £1,800 of imports) but her 80% share in the New England trade represents dominance of a major market. London's share in the Virginia-Maryland market is unfortunately not given, but it is noted that the areas with least London trade were Carolina (with "only" 48%) and Newfoundland with 8 per cent.

Thus even in her special field of North American trade Bristol lay far behind London in volume: even trade with the tobacco-rich states of Virginia and Maryland must have been much more London-dominated than Bristol-dominated (cf I. Noël Hume's remark (1963: 264) that Bristol seems to have been the principal source of the white clay pipes found in Virginia ca.1660-1775 with Atkinson and Oswald's observations (1969: 205) that at least at Williamsburg, the colonial capital of Virginia, London pipemakers seem to have had a large proportion of the trade - in fact, as the distribution maps FIGS 160-63 indicate, the Williamsburg-Jamestown area has produced a very considerable quantity of various Bristol pipes, but published excavations of sites dating from the mid-C17 up to ca.1772 both in the Tidewater area round Williamsburg (Caywood 1955b; Kelso 1966; 1969; I. Noël Hume 1962; 1966a; 1966b) and from Williamsburg itself (A. Noël Hume 1973) suggest progressively more London pipe-material so that by the C18 it is overwhelmingly predominant).[66] However, in terms of percentage of total tonnage exported, Bristol's North American exports formed an appreciably greater proportion of that port's exports than did that of London as a proportion of its exports, ca.25% of Bristol's export tonnage going to North America. Of that, two-thirds went to Virginia, Maryland, and the Carolinas, and most of the rest went to New England, New York, and Pennsylvania. Newfoundland took the small remainder, the bulk of the Newfoundland export trade coming from certain smaller West Country ports such as Bideford, Barnstaple, Lyme Regis, and particularly Poole, whose entire North American trade that year was with Newfoundland. Thus not only was Bristol's rising prosperity founded on a very narrow base but it was on a base that was by no means an exclusively Bristol sphere of influence.

Further, in 1715 over 50% by value of England imports from North America was tobacco, Virginia shipping about two-thirds of the colonies' tobacco and Maryland approximately the other third. Tobacco made up 95% of the exports of these two colonies, yet economically it was a wasteful crop because it exhausted the soil after three years, necessitating the continual opening up of new land. From different aspects, therefore, it can be seen that Bristol's North American trade was set neither on a secure nor a diversified basis. As with its medieval trade in French and Iberian wines, Bristol relied on a predominantly luxury import market to achieve its prosperity, and again as in medieval times consistently imported more than it exported (cf Minchinton 1962: 7-8). With the hindsight of history therefore, it can be said that Bristol's economic prosperity was vulnerable to ports with a greater variety of trade or a more prosperous hinterland or superior harbour facilities or any combination of these (cf MacInnes 1939: 358). Probably for this reason Bristol's trade tended to decline in time of war (Minchinton 1957: x); Liverpool's, on the other hand, tended to thrive during the wars at the turn of the C18 (see 4: II).

However, in the earlier C18 Bristol was both the second city and the second port in England. An analysis of outgoing cargoes (excluding those to Ireland) in 1715 indicates that in shipments to Asia, Africa, and America, Bristol was ahead of Liverpool and second only to London; and that it ranked approximately second equal after London with Great Yarmouth, Newcastle, and (rather surprisingly) Fowey in trade with southern Europe - an area defined as Europe west and south of Calais and including the Channel Islands, the Canary Islands, and Maderia. Trade with Flanders, The Netherlands, and NW Germany; and with Scandinavia and the Baltic was small, however: Bristol had appreciably less with the former area than did Liverpool, and about the same with the latter area (Andrews 1970: 204 fig 6). During the period 1700-60 Irish imports from England trebled and Irish exports almost doubled, England importing more from Ireland than from any other European country (Ashton 1955: 156, 1961 ed cf Defoe's remarks on Bristol's Irish trade during the period ca.1690-1720, quoted in Marcy 1966: 2): as noted above, all Irish imports had to pass through English ports until 1778 and Bristol was traditionally the major shipping centre for Ireland.

There is certainly evidence that Bristol profited from this position earlier, for at the end of the C17 the Customs Farmers in Ireland recommended direct shipment there of tobacco to avoid the corruptness of the Bristol re-export trade (Tyack 1935b: 197). The most frequented Irish ports were Dublin and the southern ports of Cork, Limerick, Waterford, and Youghal, the latter group also being used as victualling stations by Bristol vessels on the Atlantic runs. As there had been a Bristol pipemaker active in Waterford in the earlier C17 so there was a Bristol glassmaker active in the 1760s and 1770s in Dublin (Buckley 1925: 47). The enterprise, which was connected with a short-lived glass enterprise at Chepstow, does not appear to have been particularly successful, but in view of the evidence for heavy Bristol investment in South Wales in the C18 and scattered investment elsewhere (Minchinton 1954: 82-5) similar investment in Ireland was probably not limited to the isolated example cited here.

In the C18 the West Indies trade became the most important for Bristol, and for that reason rum, molasses, and above all sugar, became Bristol's chief imports, displacing tobacco from its position held in the latter part of the previous century, though the North American trade continued. In return Bristol exported clothing and materials, including glass, for building houses, mills, and distilleries, and tools for manufacturing and farming - Bristol bricks and tiles, it was said, were the chief ballast of

West Indies ships. Jamaica was the most important centre for the West Indies trade. Fish and train-oil from the Newfoundland fisheries went directly to Iberia and the Mediterranean, the ships returning with the traditional goods of these areas - a variant of the triangular trade. Wool for the Bristol cloth industry was a new addition to imports from this area. The copper and brass works founded at the beginning of the century at Baptist Mills and elsewhere made trinkets for the African trade, which also took cotton, linen, spirits, muskets, and ammunition. Ireland sent dairy produce and food, leather, hides, and timber and received in return manufactured goods and colonial produce. Trade into the Baltic generally went out either in ballast or with colonial produce; return trade (often in foreign ships) comprised grain, iron, timber, sawn lumber, and ships' stores (cf Quesne-Bird 1972b).

With her withdrawal from the slave trade by the end of the C18, the loss of much of the American trade following the American Revolution, and the lessening in varying amounts of the Newfoundland, Iberian, and Irish trade towards the end of the century most of Bristol's wealth became concentrated in the West Indies trade, particularly in sugar, and many of her merchants owned plantations there. The value of the West Indies trade can be appreciated when it is realized that in the beginning of the 1790s Bristol was said to be more prosperous, despite the decline in so much of the rest of her trade, than ever before (Minchinton 1957: xi); the West Indies trade was worth twice as much as all other oversea trade combined (MacInnes 1939: 358).

There were a number of reasons for the relative decline of Bristol at the end of the C18 and the loss of the pre-eminence it had enjoyed for most of that century, and these have been summarized by MacInnes (1939: 358-63) and by Minchinton (1957: ix-xvi; also 1962: passim). By 1800 Bristol had slipped to eighth among the outports in vessels, tonnage, and men, the first four ports being Liverpool, Newcastle, Hull, and Sunderland (Ashton 1955: 144-5, 1961 ed), and though its population had increased between two and three times between 1700 and 1800, Manchester, Liverpool, and Birmingham had all surpassed Bristol by the latter date. About 1700 Bristol's population was in the 20,000s (Minchinton 1954: 74, repeated in 1957: ix and 1962: 1 says ca.20,000; Little 1954: 327, 1967 ed says ca.27,000 and Latimer 1893: 194 estimates ca.23,000 in 1712); in 1801, at the first census, the figure was 66,923 including Bedminster, plus an unknown number of evaders. Liverpool by contrast had increased its population from an estimated 6,000 in 1700 to some 77,000 in 1801 (see 4: II). (There is a discussion of estimates of Bristol population in the C18 in Little 1954: 326-8, 1967 ed, and other estimates are noted in Latimer 1893: 194, 292 and Marcy 1966: 4-6).

Basically, the ports which had overtaken Bristol were either more resilient to adversity, more speculative in their trade, or had greater potential and diversification of trade, industry, and hinterland (cf P. Marshall 1968: 22-3); and as Minchinton notes (1957: xvi), once ground had been lost it was difficult to prevent the decline continuing: in 1800 it was noted that "several cargoes of West Indian and American produce have recently been imported into this city from Liverpool" (quoted in Minchinton 1962: 21). As early as 1765 Liverpool had vastly more ships entering and leaving her port than had Bristol, and in 1788 it was noted that customs receipts at Liverpool had "for some time past" exceeded those of Bristol (both noted in Marcy 1966: 4); indeed, elsewhere Marcy suggests Liverpool had overtaken Bristol before mid-century (1969: 149).

Thus for the earlier part of the C19 Bristol trade was in a difficult period, with her old markets gone to a considerable extent and new ones not yet emerged. Traditional Bristol industries such as sugar, brass, and glass survived the American Revolution and Napoleonic Wars only to decline in the C19 partly because of changing general patterns in industrial Britain, partly because of lack of local enterprise, and partly because of outdated production methods (Alford 1968; 1973: 90-1; Stiles 1969; Buchanan and Cossons 1969: 67-9, 121). The brass industry was dying throughout the C19 while the sugar and glass industries, after achieving some prosperity in the earlier C19, similarly fell into a protracted and final decline. The city, which had always tended to a traditional and defensive position on changes likely not to be beneficial to its interests, went through a period of fruitlessly fighting for the old economic order that Adam Smith had denounced, culminating in the stand against the abolition of slavery with its inevitable effect on the West Indies plantations and trade closely linked to Bristol; and the Bristol West India Association continued to protest the passing of the good old days until it was disbanded in 1857, almost a quarter of a century after slavery had been abolished.

When the long-mooted harbour improvements did come in 1809 they were neither adequate in size nor soon enough in time to stimulate a port which had lost its traditional Midlands trade and all that would have meant in the last part of the century with the completion in 1777 of the Grand Trunk Canal and its connection to the Mersey and Liverpool; and as improvements they were minor compared to the East London docks being constructed at this time. London in fact was getting its Avonmouth and Portishead two generations before Bristol (Avonmouth Dock was finished in 1877, Portishead in 1879), though it is only fair to note that the East London docks were much nearer to London than Avonmouth and Portishead were to Bristol. Brunel's steamers the Great Western and the Great Britain, launched in Bristol in 1837 and 1843 respectively, had to move to Liverpool for their transatlantic runs, for they were too big to use the Floating Harbour - indeed the Great Britain, of 3,270 gross tonnage and 322 ft long, barely got out of the harbour at all and was stuck there for over a year. Grounding of ships in the narrow and winding course of the Avon up to Bristol - a channel called a "mere ditch" by the nearly-stranded Admiral Plumleigh in 1630 and referred to in 1767 by William Campion as the "present contemptible channel" - continued as late as the 1870s (photographs in Winstone 1965: pls 134-6, 138, 150; 1968b: pls 122-3) as the City Docks struggled to accomodate the ever-increasing size of shipping now being used for world trade.

Excessive dock charges compounded the problem (cf Marcy 1969: 165-6; Buchanan 1960a: 204; 1971: 2; 1972: 41 and 44): in 1833 linen cost about six times as much to unload in Bristol as in London or Hull and in the 1840s, on 40 major non-edible articles the port charges were 5s5-1/2d more at Bristol than at Liverpool, ca.8s more than at Hull, and even more above that charged by the rapidly-expanding rival ports in South Wales. About this period taxes on vessels and goods entering Bristol were on the average more than double the corresponding taxes in Liverpool or London, and on tobacco Bristol merchants had to pay a total of 3s a hogshead compared to 5d in Liverpool (Alford 1973: 39). It is not surprising that Wiltshire clothiers shipped through Liverpool instead of Bristol. Similarly, the Bristol cotton industry established in 1838 ran into difficulties because it proved more expensive to bring cotton through the port of Bristol and to the factory which stood on the Feeder Canal than it was to bring the cotton by rail from Liverpool (Buchanan and Cossons 1969: 137-8).

When, therefore, Bristol's fortunes began to rise again it was with the rationalization of the harbour facilities at the mouth of the Avon, the uniting of the rival Avonmouth and Portishead docks with the City Docks under the city corporation which bought out the former two docks, the final curbing of the last die-hards who continued to favour the City Docks, the abandoning of the docization schemes, and the building of the Royal Edward Dock between 1902 and 1908 which approximately doubled the size of the Avonmouth Docks; and it was on the diversified world trade of the C20 rather than on traditional products (though Bristol is still the chief wine port after London) that prosperity was built. By the turn of the C19, however, the clay tobacco-pipe industry had collapsed, and in fact only three firms struggled into the C20, the last closing in 1921. (Where otherwise unnoted, material in this section is based largely on MacInnes 1939 and Little 1954, 1967 ed).

For convenience, Bristol's oversea trade in pipes will be divided into three sections - Europe, Africa, and North America including the Caribbean.

(2) Europe

As has been noted above, Bristol has had close commercial contacts with Ireland, particularly with south and east Ireland, for the thousand years the city is known to have existed. Although there is evidence (1: VII(a) and 4: IV, in Glasgow section) that the popular means of tobacco-taking in Ireland from before 1650 to at least the second half of the C18 was in the form of snuff and that the Irish clay-pipe industry does not appear to have reached any importance before the earlier C19, pipes, including Bristol-made pipes, were being used in Ireland from the earlier C17 at least. Pipes dating to the C17 and C19 have been found on excavations in Ireland (e.g. Croker 1835: passim; Anonymous 1855; Fitzgerald 1855: 307-8, 304 lower illus; Wilde 1863: 159-60; Ronayne 1903; Rynne 1964: passim; Addyman 1965: 93, 94, 99 fig 11 nos 3-4; Rynne 1967: 34 and n.6); but as Rynne notes (1964: 256), no work has been done on Irish pipes nor have well-dated deposits been excavated that would enable typological studies to be made.

A charge laid against Strafford at his impeachment in 1641 was that he had instituted a monopoly on tobacco-pipes in Ireland, but the charge was never discussed (Miss C.V. Wedgwood in litt. 20 January 1969). However, pipes were being sent to Ireland from Bristol by 1637 (Kearney 1959: 136-7), though the amount noted, ten score, is perhaps a mistake for ten gross. Edward Abbott, a founder-member of the Bristol pipemakers' guild in 1652, was a pipemaker in Waterford when the Irish rebellion broke out in 1641, and owed his security to his trade, for the Irish expelled all Englishmen except for a few, including Abbott, whose skills were considered necessary to retain. (Whether Abbott was a Bristolian prior to working in Waterford is uncertain: in 1619, when Waterford was incorporated, there was an appeal to Bristol citizens with useful trades to settle there (Latimer 1900: 71) and while there is no record of anyone doing so it would not be surprising if Abbott moved there at some time from Bristol.)

In 1666 a Col William Legge appealed for a grant to make and sell tobacco-pipes in Ireland (T.P. Cooper 1907: 104; SPD Chas. II 16 Aug 1666), but nothing further is recorded. (Presumably this is the Royalist Col William Legge, 1609?-1672, noted in the DNB; he was an Irishman.) Bristol pipes were certainly reaching Ireland at this time, for an example marked John Hunt was excavated in Dublin (Anonymous 1855) and one marked Flower Hunt was in the museum of the Kilkenny and South-East Ireland Archaeological Society (Fitzgerald 1855: 309-10 editor's note).[67] (John Hunt became free 1651 and is noted in 1653, Flower Hunt also became free in 1651 and died sometime between 1670 and 1672.) Further, at least two of the pipes from Yougal illustrated by Fitzgerald (1855: 304 lower illus, two on rt) are of shapes typical of Bristol pipes made in the mid-C17 - cf, for example, the pipe second from the rt with products of Richard Berryman (fl 1619-52) and Edward Lewis (fl 1631-40/1, app D by 1652) and the pipe on the extreme rt with products of Thomas Monkes (fl 1656-69/70) and Philip Edwards sr (fl 1649/50-68/9, D by 1683) - and the two bowl-shapes depicted by Wilde (1863: 159 fig 115 nos 15 and 16) and described as "the two most frequent forms" found in Ireland are respectively the mid-C17 chinned bowl typical of Hunt and other West Country pipes and a ca.1700 early West Country type 9 form.

Apart from Kearney's reference to pipes being shipped to Ireland from Bristol in 1637 noted above the only printed notice of Bristol pipes going to Ireland is the two boxes going to Cork in the Hester 17 June 1720 noted by Minchinton (1957: 78), but there can be little doubt that Bristol pipes were shipped to Ireland far more frequently than these isolated references would suggest. There was still a market in Ireland for Bristol pipes at the end of the century, for an advertisement of 1799 among the pages of the Bristol Pipemakers' Guild Book lists among other markets for which pipes were produced "the Irish and Spanish markets", pipes for this trade being listed at 1s, 1s2d, and 1s3d a gross. The advertisement was signed by Anna Viner, John Carey, Joseph Edwards jr, and Samuel Richards jr, four of the six Bristol pipemakers known to have been in business at this date. Details of this trade may have to await a survey of the Port Books, however, for little post-medieval archaeology has so far been undertaken in Ireland and that country is not well-endowed with museums, there being only three in Northern Ireland and four in Eire (I am extremely grateful to two of these, the County Museum, Armagh, Northern Ireland, and the Cork Public Museum, Cork, Eire, for sending me respectively drawings and a photograph of the pipes in their collections. The Cork material was all C19, as was most of that from Armagh, but the latter did include several C17 specimens, including two belonging to the earlier part of the century, unfortunately unmarked).

So far as this writer is aware no finds of Bristol pipes have been recorded on the Continent. That Bristol pipes were exported to Europe is, however, indicated by scattered references in the C18. Under the heading "Exports to Portugal and the Mediterranean: specimen entries" Minchinton

(1957: 10) lists 20 gross tobacco-pipes in one entry dated 16 January 1708/9 and 30 gross in an entry two days later, and at the end of the century 12 boxes of tobacco-pipes were specifically noted as going to Cadiz in the Joanna on 11 October 1790 (Minchinton (ed) 1957: 61). This latter entry bears out the reference in the 1799 advertisement noted above listing pipes "suitable for the Irish and Spanish markets" at 1s, 1s2d, and 1s3d a gross by Anna Viner, John Carey, Joseph Edwards jr, and Samuel Richards jr. Trade to Iberia in clay pipes can never have been high because of the overwhelming predominance of cigar-smoking there, but there must have been a steady minor market, for Oswald (1960a: 48) notes 100 gross pipes being shipped to Spain during the Michaelmas-Christmas period of 1698 (London is the port of origin meant, see Oswald 1959a: 59-60), and on 23 March 1714/5 The Queen's Peace of Chester left Swansea for San Sebastian with a cargo which included 12 gross pipes (Talbot 1969: 131). There is a shipment in 1700 from London of 18 gross pipes in a vessel bound for Corunna, the Gold Coast, and the Gulf of Guinea (Donnan (ed) 1935: 77) but it seems more likely the pipes would have been for the African slave trade (see section below) than for Corunna. That white clay tobacco-pipes have been found in Spain is indicated in Amador de los Ríos 1913, though then as now much medieval and post-medieval material tends to be called Roman in Spain.

Elsewhere, Bristol pipes are known to have reached Norway, for three boxes were shipped 8 May 1790 to Langesund in the Norway Lion (Minchinton (ed) 1957: 62). As noted in 3: VII the Danish, Norwegian, and Swedish pipe industries were started in the mid-C18 under the protection of tariffs on, or outright prohibition of, imported foreign pipes; but by the end of the century these native industries had largely failed. From bowl shapes and decorative motifs used in the industries of all three countries it is clear there was considerable English and Dutch influence, which confirms other evidence that both the English and Dutch exported pipes to Scandinavia prior to the mid-C18. The bans on imported pipes in Scandinavia and elsewhere certainly adversely affected the Dutch industry, which appears to have had a major Baltic trade, but as the native Scandinavian industries failed it was the more competitive German pipe industries which took over the northern markets. The 1790 reference to Bristol pipes being exported to Norway, however, indicates English pipes were once more reaching Scandinavia, and it seems quite possible that prior to the mid-C18 Bristol, which is noted above did have a minor Baltic trade, had traded pipes to northern Europe - in this context the introduction of the bianco sopra bianco decortive technique on delft into Bristol, probably to the Redcliff Pottery of Richard Frank, by Magnus Lundberg from the Rörstrand faïence factory in Sweden in the mid-C18 (Charleston 1963; Ray 1968: 52 and n.22) should be remembered. As already noted in 2: VII, the pipes produced in the second half of the C18 in Sweden were of English (though admittedly London) type 9 bowl shape. The maker's mark is described as being on the side of the bowl above the junction with the stem (Puktörne 1968: 77 and 79, 78 fig 5a and b), but unfortunately the drawings of the bowls do not show exactly where the mark is placed - if further up than the base it could be strongly reminiscent of the very characteristic Bristol marking of a cartouche in this position (see Appendix IX passim).

Friederich (1970: 164) talks of Bristol pipes being imported into The

Netherlands at the beginning of the C18, and illustrates (p.162 graph 1 btm pipe in col. 2, dated 1715) what he calls a typical example (cf 1964d: 4 no 16, where it is dated 1720). It is difficult to accept unreservedly all Friederich's statements in his various papers, and in this case, while the pipe illustrated certainly appears to be English, it is not of a shape particularly characteristic of Bristol pipes and it is unlikely to date as late as ca.1715-20 - it is of Oswald's type 7a (Oswald 1961: 59, 58) which he dates to ca.1670-1710 and in the opinion of this writer is more likely to date to the earlier part of that period.

For a number of reasons one would not expect to find English pipes being imported by The Netherlands. In view of the intense rivalry between English and Dutch pipemakers, the persistent attempts of the English government to prohibit or at least heavily tax the importation of Dutch pipes, the superiority of Dutch pipes compared to English pipes, and the cheapness of Dutch pipes compared to English, one can see no grounds for supposing English pipes would find The Netherlands a profitable market, nor indeed for supposing that they would be permitted to be imported. Certainly no British material was observed by this writer in any of the museum pipe-collections examined in Belguim and The Netherlands in 1969.

There is, however, an intriguing reference in a 1710 decision of the Bristol Pipemakers' Guild on standardizing lengths of pipes (see p.15 above) to "Dutch Pipes" to be thereafter 14 ins long measured from the heel. It is difficult to say, however, what "Dutch" pipes are here: other types of pipes whose lengths were defined included "Jamayca" and "Virginia" pipes, which must certainly refer to pipes destined for the vast trade to these colonies (cf pp655ff below - "Virginia" pipes were presumably traded to all the British American colonies), but other types again were "Long Pipes", at 16 ins the longest type produced; "Pecked(?) Heeles", an appellation which at present means nothing to this writer; and "Gantletts" [sic], which are presumably pipes plagiarizing the name of the famous Wiltshire pipemaking family of Gauntlett (see pp258-9). Thus "Dutch Pipes" could refer to pipes destined for trade to The Netherlands (or conceivably bought in Bristol by Dutchmen for their own oversea trade - there is a 1719 reference to English trading companies being allowed to buy Dutch pipes because they were cheaper than English, provided the pipes were not imported into England (see below)); to pipes imitating Dutch pipes in style; or possibly simply to high-quality pipes, Dutch pipes being famous for their quality (cf p.96 above). Certainly, this writer knows of no Dutch-style pipes produced in Bristol; and indeed to modern eyes, used perhaps to the almost endless variety of C19 pipes (cf 156, 164, 23 above), there is remarkably little difference among bowl shapes in any one area at any time in the C17 and C18 (cf p.166 above). It is possible that stem length was in fact the only critical difference among the various types listed in 1710 - unfortunately, the extreme rarity of whole pipes makes it impossible to try to recognize these styles from finds, and unless a very well preserved waster-dump is found, or an undamaged cargo recovered from a sunken ship, identifying these types is likely to remain impossible.

In conclusion, therefore, it would appear safer to withhold judgement as to whether Bristol, or indeed any English, pipes were exported to The Netherlands until either definitely identifiable specimens have been recorded from excavations or documentary proof is produced.

(3) Africa

In Africa little archaeology has so far been done involving sites containing European material, but vast amounts of European material were shipped to West Africa as part of the slave trade (e.g. Donnan (ed) 1930-35: passim; Ratelband (ed) 1953: passim) and the appearance of such material, including clay pipes, in excavations at Asebu (Nunoo 1957), Ladoku (Ozanne 1964), Bui (York 1965), Ahinkro (York in Calvocoressi (ed) 1965), and Bantama - formerly Abensim - near Elmina (Calvocoressi 1968; Calvorcoressi (ed) 1969), all in Ghana, and from other Ghanian contexts (Calvocoressi MS), indicates it will be found on excavations involving C17 and later occupation. The key terminus post quem for Ozanne's dating of locally-made clay pipes in the Accra area, for example, was the occurrence in a stratified deposit in a midden at Ayaso of fragments of a Wanfried sgrafitto-ware plate datable to ca.1625 (Ozanne 1963).

Until more archaeology of suitable sites is undertaken, however, information on clay pipes shipped to West Africa must be largely confined to documentary sources. Trading to the Guinea coast was carried on by a number of countries, particularly Portugal, The Netherlands, England, and France at various times, and a word of caution must be given against assuming that, for example, the presence of Dutch clay pipes must invariably indicate Dutch influence: in 1719 it was observed (noted in Donnan (ed) 1931: 241-2) that English trading companies had been allowed to go to The Netherlands to buy pipes there for the African trade because they were cheaper than English pipes, though it was forbidden to import Dutch pipes into England. The only excavated site for which there is an adequate description of European pipes found is Asebu, and there the pipes dated from the C17 to C19 and were predominantly Dutch but with some English, though none of the latter could be identified as Bristol (Nunoo 1957: 16-17, pl III bottom, additional photographs from author 23 May 1969, additional identifications Oswald in litt. 1 January 1969).

There is no doubt pipes were used extensively in West African trade. As already noted when discussing the Liverpool pipe industry (4: II), 1,791 gross pipes, or over quarter of a million, were exported from Liverpool for West Africa in 1770 (Donnan (ed) 1931: 536). Not all, however, appear to have been used to trade for slaves, for there are references in 1691 and 1714 to pipes being among "provisions" for slaves and an observer writing in 1735 noted that slaves on board ship were allowed exercise and pipes and tobacco (Donnan (ed) 1930: 372; 1931: 181, 282). Pipes were certainly also used in C19 legitimate trade with West Africa: a manuscript account of New England legitimate trade there at the beginning of the C19 has various references to "Pipes Common short, with large bowles; a few 18 or 20 inches long", "Gentlemens Pipes", "large English & dutch pipes", and "long Dutch or English pipes" being among the goods noted (G.E. Brooks 1970: 324, 326, 329, 334). Pipes were among trade goods particularly favoured by traders for use as "dashes" - presents - as part of the trading and bargaining palavar (Brooks op. cit. 318, 321, 326, 338, 341).

That Bristol traded pipes to West Africa is indicated by several shipping records. Minchinton (1957: 77) notes two boxes of tobacco-pipes in a cargo bound for Africa on the galley Raymond 4 February 1719/20, and

Donnan (1931:326) notes a barrel of 14-1/2 gross pipes - over 2,000 - in a similar cargo dated 30 September 1725 (the 14-1/2 gross cost 1s each and the barrel 2s). Another, undated, reference notes 12 gross tobacco-pipes among the "provisions and supplies" on a Bristol slaver bound for West Africa (Donnan (ed) 1931: 446, repeated in MacInnes 1939: 206). These shipments are certainly not likely to be isolated examples, but it is perhaps not coincidence they occur at a time when both the slave trade and the pipe industry in Bristol were at the height of their prosperity.

Bristol goods may also have reached as far afield as Madagascar (now the Malagasy Republic) and India in the first quarter of the C18, for in 1721 a Bristol informant revealed that Bristol ships allegedly sailing for the Guinea coast were in fact going to Madagascar and trading there with smugglers from India who were able to supply cheaper slaves. As this infringed the East India Company's trade monopoly it was stopped, but presumably it had been going on for some time prior to 1721 (Latimer 1893: 127-8).

Shipping pipes to Africa from Bristol continued long after the end of the slave trade. As already noted in Section VI above, a manuscript note of September 1952 written by the last Thomas George claims that Mr George's great-great-grandfather "helped Mr John Carey, when pressed for time to catch the Ships going to the West coast of Africa". John Carey (or possibly two John Careys - see Appendix IX) is recorded free in 1780 and appears regularly in trade directories from 1791 to 1815. Mr George's remarks are obviously a family tradition, and as discussed in Section VI, while some parts seem definitely inaccurate Carey does appear to have had a prosperous business. His family had been pipemakers from the mid-C18, and with the revival of pipemaking in Bristol from the beginning of the C19 Carey may well have re-established oversea trade of the type which had made the industry prosperous in pre-American Revolution days.

MacInnes (1939: 382-3, 1968 ed) notes that in the years immediately after the American Revolution Bristol began to develop a direct trade with West Africa wholly unconnected with the slave trade, which was in any case abolished in 1807. This trade, MacInnes notes, developed slowly until the 1860s, after which it declined so that by 1890 no ships were clearing Bristol for West Africa or returning to Bristol from there. Mr George's claim therefore fits the economic background of the time; an examination of the port books would no doubt produce confirmation. There is indirect evidence for the revival of the African trade starting only ca.1800 from an advertisement of 1799 among the pages of the Bristol Pipemakers' Guild Book signed by four of the six Bristol pipemakers known to have been in business at this time in which details of various costs of pipes for home, West Indian, American, Irish, and Spanish markets are noted but the African trade receives only the comment "Likewise Tobacco Pipes made exactly to Patterns, for Africa and any other Market", suggesting it was not yet of significance. The four makers placing the advertisement included John Carey, the others being Anna Viner, Joseph Edwards jr, and Samuel Richards jr.

That Bristol continued an African trade in pipes is suggested by a comment made at the time the last Bristol firm, George's, closed in 1921, that until ca.1900 the firm had a major trade with South Africa, trade there taking most of their weekly production of 500-600 gross. They were used, according to the report - which was quoting one of the George family - to barter with the natives and buy ivory and other products (Anonymous 1921a).

There is therefore every reason to expect that Bristol pipes will be recovered from excavations of African, particularly West African, sites of both the C18 and C19. That clay pipes can reach far inland areas, presumably by barter among tribes, is suggested by their reaching the Sudan (Oswald 1960a: 48).

(4) North America and the Caribbean

Unlike Africa, North America has produced archaeologically much European material of the C17 and later centuries, and included has been a great many Bristol-made pipes covering the period from before 1650 to the C19. Random references in published shipping lists suggest shipments were extremely common: McGrath (1955: 272-3, 1968 ed) notes three shipments for New England in March 1679, for example, 200 gross in the Seafare and another of 26 gross in the same ship and 90 gross in the ketch Supply. The previous year the Saphire had taken 140 gross for New England. Twenty-five gross went to Virginia in 1679 in the Samuel and Mary and 16 gross in the Sarah and Elizabeth the same year (McGrath (ed) 1955: 271-2, 1968 ed). More than 100 years later, in 1790, ten boxes of pipes were shipped to Quebec City in the Polly (Minchinton (ed) 1957: 56). Little in an undated context but probably referring to the second half of the C18 notes pipes among commodities sent to Newfoundland in exchange for the products of the fishing fleets and sealers (1954: 163, 1967 ed), and Latimer in a reference discussed in more detail below notes Bristol had been exporting 500 or 600 boxes of pipes annually to the colonies prior to the outbreak of the American Revolution in 1775 (1893: 414). As noted on p.978 above, a Bristol Pipemakers' Guild agreement of 1710 standardizing lengths of various types of pipes referred to "Jamayca" and "Virginia" types, the former having a stem-length of 13 ins measured from the heel and the latter being 8-1/2 ins long, a length which made them the shortest of the six types noted (the longest was 16 ins). Nearly a century later, in 1799, an advertisement among the pages of the Bristol Pipemakers' Guild Book indicates that pipes for the West Indian and American markets were still among the types produced (see p. 679 below).

These references, however, offer only the barest glimpse of the extent to which Bristol pipes were traded in North America. They have been found on European and Indian sites from Newfoundland to Jamaica and as far as Louisiana and Michigan and in an isolated instance, Wyoming.

The earliest Bristol pipes found in North America so far appear to be ones probably attributable to Richard Berryman (fl 1619-52), the earliest-recorded Bristol pipemaker; and to Edward Lewis I (A 1624, fl 1631-40/1, prob. D by 1652) or perhaps to Elizabeth Lewis (fl 1652), who was either Edward's mother or his wife.

Three RB-marked pipes were found at the EB 2 site at East Boothbay, Maine, SE of Bath (Nickel 1966: 14, 15 fig 11). Only one of these is illustrated, and its mark - and in the absence of specific reference to the contrary presumably the marks of the other two - does not include the dagger-and-heart motif normally, but not always, used by Berryman between his initials (e.g. figs a-f, i, k); but the shape of the bowl illustrated indicates the "chinned" West Country form influence which is known on presumably late Berryman bowls (e.g. figs f, i-k). Strengthening a Bristol connection was the occurence with these pipes of a Philip Edwards bowl (see below). Further, East Boothbay is only across the Damariscotta estuary from Pemaquid (see above) which was originally settled by Bristolians in 1632. The Jamestown RB-marked pipes are less certainly Berryman products, however, for the only information available about them is their letters, neither bowl-shape, details of mark, nor context being available to yield further evidence.[68]

Pipes attributable to Edward Lewis are known from Virginia, one example coming from a rubbish-deposit on the banks of the James River at Newport News (Pearce in litt. 24 December 1963 and Pawson 1969: 129 fig 5 no 6, 130) and a number from Jamestown (Cotter 1958: passim). Both Edward Lewis's mother and wife were called Elizabeth; his mother was the wife of pipemaker Samuel Lewis, fl 1620s, and the Elizabeth Lewis listed in 1652 among the guild founder-members could be either her or Edward's wife, though the chances are she was the latter. That the rather distinctive style of EL heel-mark attributed to Edward Lewis was used by successors in his family is suggested by its occurrence on a bowl found in Bristol and typologically datable to the 1670s and of a distinctively Bristol shape, for unless Elizabeth Lewis continued working much later than there is evidence for, this bowl must belong to the Edward Lewis F 1678/9 fl 1722 who was the grandson of the first Edward and the fourth of five generations of this family all pipemakers. If so, however, it must be one of his earliest products. Cotter dates most of the Jamestown EL-marked bowls to 1650-75 with some to 1675-1700, but the shapes he illustrates as typical of these periods (p.210 pl 92 top row three on right) are of a 1625-55 date and thus cannot belong to the second Edward Lewis.)

James Fox (prob. A 1639/40, fl 1651, F 1654, fl 1668/9, poss. fl 1696) appears to have been the next earliest maker to export to North America, and the distinctive stem mark probably his (see Sub-section (a)(2) above; also Appendix IX) occurs at the following sites (FIG 156):

Maine

Pemaquid, SE of Bath - originally settled by Bristolians in 1632 (Mrs H. Camp in litt. 27 July 1966; H. Camp 1968: 11 fig 5 sixth line);

New Jersey

the Salisbury site, nr Swedesboro (Cross 1941: pl 25b no 9);

Virginia

Clay Bank, on the north side of the York River north of Newport News - six examples (I. Noël Hume 1966a: 14, 26 fig 16, 28);

Lightfoot, nr Williamsburg - at least 14 examples (Kelso 1966: fig g,9, 114; 1967: 69 fig 13,5, 70 and n.36, 58);

Jamestown (Cotter 1958: passim; Peck 1967: 118, 117 pl II,11).

Fox's pipes may also have been found at the Hunting Creek midden site near Choptank NE of Cambridge, Maryland: there the excavator described but unfortunately did not illustrate a stem-mark which he read as XHX between rouletted lines (Flegel 1964: 7) which could very well be Fox's mark of IF with a cross on either side. Curiously, the mark identified with Fox has not been noted in any of the Bristol collections, and the only bowls so far found in North America attached to these marked stems - at Clay Bank and

Lightfoot - though in no case complete, suggest a shape datable on typological grounds to some ten years later than 1668/9, the last definite known date for Fox. An entire bowl with this stem mark from London (see above, home trade), however, does confirm this relatively late date if not one even slightly later - there is a possibility Fox was still alive in 1696.

One of Fox's apprentices, *Llewellin Evans* (prob. A 1654, F 1661, fl 1684, D by 1688/9) probably expanded his master's trade, for he used a distinctive stem mark rather similar to that of Fox and both stems and bowls attributable to Llewellin Evans have been found on a considerable number of eastern North American sites and in Jamaica. The sites are as follows (FIG 154):

Canada - *New Brunswick*

Fort Meductic, nr Woodstock, nr the New Brunswick-Maine border (Kain 1903: fig 6, 256; I. Walker MS 1);

Portland Point, Saint John, site of Fort La Tour (Omwake 1957b: 4-8; also Barka 1965: 432, pl 160 fig 79,20);

U.S.A. - *Maine*

Pemaquid (Mrs H. Camp *in litt.* 27 July 1966; H. Camp 1968: 11 fig 5 second, fourth, and fifth lines);

Massachusetts

the site alleged by the excavator to be the John Alden House at Duxbury north of Plymouth (Robbins 1969: 36);

the Joseph Howland site, Rocky Nook, Kingston, north of Plymouth (M. Brown III 1972: 9);

Rhode Island

find attributed to Burr's Hill cemetery, an Indian burial-ground at Warren, SE of Providence (M. Brown III 1972: 10);

a colonial midden at Portsmouth, SE of Providence - five bowls and five stems attributable to Llewellin Evans from this site (M. Brown III 1972: 5-6, fig 3,1 and 2);

the Jireh Bull site, South Kingston, SW of Providence (M. Brown III 1972: 9);

New York

the Schurz site, Bronx county, New York City (Omwake 1958: 10-11, fig 1b);

New Jersey

the Salisbury site (Cross 1941: pl 25a nos 5 and 8);

Delaware

the Townsend site, nr Lewes (Omwake 1963a: 41-2, pl IIB nos 1 and 2);

Maryland

the Buck site, near Chestertown (Omwake 1967b: 15-16, fig 2; Alexander *in litt.* 17 December 1972 and 23 August 1974);

the Hunting Creek midden site - 13 stems and three bowls attributable to Llewellin Evans from this site (Flegel 1964: 6-9, pl II figs 1a, A, and D);

Sinepuxent Neck, near Ocean City (Omwake 1946: 20);

Virginia

the Hallowes site, Westmoreland county, nr Stratford on the south shore of the Potomac estuary (Buchanan and Heite 1972: 45, 43, fig 4,A and D);

Green Spring Plantation, between Williamsburg and Jamestown (Caywood 1955b: pl XVI bottom left section, extreme left top row);

Jamestown (Cotter 1958: *passim*; J.P. Hudson *in litt.* 6 November 1967; Peck 1967: 118, 117 pl II no 7);

The late H.G. Omwake also noted these pipes had been found in *Pennsylvania* (Omwake 1967b: 15); and elsewhere (1957b: 5) when listing occurrences of LE- and WE-marked pipes noted one or the other or both marks from the Broomall Rock Shelter site at Broomall, Pennsylvania, ca.10 miles west of Philadelphia; but this writer has been unable to locate any published reference to this. However, Omwake had acquired a vast store of knowledge on pipes found in the United States, particularly the eastern United States, and certainly had access to unpublished material. Again talking of LE- and WE-marked pipes, Omwake notes one or other or both from the Fort Raleigh national historic site at Manteo in NE *North Carolina*, but no such find is noted in the excavation report on that site (Harrington 1962) and Harrington (*in litt.* 9 June 1970) has confirmed that no such pipe was found during his excavations there.

West Indies - *Jamaica*

Port Royal (Omwake *in litt.* December 1966; Oswald 1968: 33 and 35 nos 50-3, 105 no 8, 107 no 22, poss. some of 31 and 33 nos 35-9; 1969: 21 and 23 nos 26-31, 67 nos 9 and 12, poss. some of 19 and 21 nos 23-5).[69]

Llewellin Evans's widow *Elizabeth* apparently carried on her dead husband's business, for she is noted as taking an apprentice in 1688/9 and another in 1690.

Bristol pipemakers clearly concentrated on the export market from the time they became an organized trade. Pipes attributable to both *Philip Edwardses* (father F 1649/50, fl 1668/9, D by 1683; son A 1668/9, F 1680/1, fl 1696) - particularly those made by the father - have occurred on a number of New World sites; and so, in lesser numbers, have products of *Flower Hunt* (F 1651, fl 1670, D by 1672) and *John Abbot* (F 1651, fl 1681, prob. D by 1696) and pipes attributable to *Richard Nunney* (F 1651, fl 1696, D by 1713) and *Thomas Monkes* (fl 1656 and 1669/70) all of which reinforce, along with the products attributable to Fox and noted earlier, the impression that Bristol pipemakers had a widespread and major export trade by ca.1660.

Edwardses pipes have been found at the following sites (FIG 161):

Maine

Pemaquid (Mrs H. Camp *in litt.* 27 July 1966; H. Camp 1968: 11 fig 5 fourth line);

East Boothbay, across Damariscotta estuary from Pemaquid (Nickel 1966: 14, 15 fig 13);

Massachusetts

the Saugus Ironworks, on the northern outskirts of Boston - where occupation can be dated to 1646-early 1670s (Fowler 1955: 45, 43 fig 13,9 and 10; also 1965: 16, fig 8,5 and 6);

Rhode Island

Portsmouth (M. Brown III 1972: 3);

New York

Fort Corchaug, west of Riverhead at the NE end of Long Island (Solecki 1950: 32, 31 fig 182);

The Sullivan or Moot site, nr Munnsville south of Oneida in the Mohawk valley (Bennett and Cole 1973: 23, fig 16,E and N);

Virginia

Jamestown (J.P. Hudson *in litt.* 6 November 1967)

Newport News (J.N. Pearce *in litt.* 24 December 1963 and Pawson 1969: 120, 118 fig 1,7b and c);

West Indies - Jamaica

Port Royal (Omwake *in litt.* December 1966; Oswald 1968: 35 no 54).

Those of *Flower Hunt* came from Newport News (J.N. Pearce *in litt.* 24 December 1963 and Pawson 1969: 120, 118 fig 1 no 6 and 6b) and of *John Abbot* from Jamestown (J.P. Hudson *in litt.* came from Port Royal (Oswald 1968: 51 no 105; 1969: 37 nos 75 and 76), Green Spring Plantation, Virginia (Caywood 1955b: pl XVI top rt section, second from rt bottom row), Jamestown (Cotter 1958: 41) (FIG 157) and to *Thomas Monkes* also from Green Spring Plantation (Caywood 1955b: pl XVI top rt section, extreme rt bottom row)[70] (FIG 157).

Pipes attributable to one or both of the *William-Evanses* (either the William A 1653 to Jane Wall and F 1660 or the William poss. brother of Llewellin above A 1660 initially also to Jane Wall and in 1661 to Robert Tippet I and F 1667; both fl 1682 and at least one fl 1697) have been found at the following sites (FIG 156):

Canada - New Brunswick

Portland Point (Omwake 1957b: 4-8; also Barka 1965: 432, pl 160);

U.S.A. - Maine

Pemaquid (Mrs. H. Camp *in litt.* 27 July 1966; H. Camp 1968: 11 fig 5 second line);

Massachusetts

the Winslow site, Marshfield, north of Plymouth (M. Brown III 1972: 7);

the Joseph Howland site (M. Brown III 1972: 8);

Rhode Island

Portsmouth - five stems and three bowls (M. Brown III 1972: 6, fig 3,4);

the Jireh Bull site (M. Brown III 1972: 10);

New Jersey

the Goose Island site, near Swedesboro, just south of the Salibury site (Omwake n.d. 4, 11-12);

Maryland

the Buck site (Alexander *in litt.* 17 December 1972, 23 August 1974, 23 October 1974, and 23 February 1975);

Bennett or Bennett's Point, south of Grasonville on the east side of Chesapeake Bay (Alexander *in litt.* 23 August 1974);

the Hunting Creek midden site (Flegel 1964: 6, 8 pl II figs 1b and 2);

Sinepuxent Neck (Omwake 1946: 21);

Virginia

the Hallowes site (Buchanan and Heite 1972: 45, 43 fig 4,B and 44 fig 4,K and M);

Jamestown (Cotter 1958: 42, 62; J.P. Hudson *in litt.* 6 November 1967; Peck 1967: 118, 117 pl II no 16);

Green Spring Plantation (Caywood 1955b: pl XVI top right section, extreme top row);

West Indies - Jamaica

Port Royal (Omwake *in litt.* December 1966; Oswald 1968: 35 and 37 nos 55-9, 107 nos 18 and 22; 1969: 23 and 25 nos 33-9, 67 no 7, 69 no 14).

By far the most important Bristol pipemakers, however, were the *Robert Tippet family*. Three generations of *Robert*, and *J(o)ane* (fl 1687-96) wife of Robert I, appear to have made pipes for almost a century, though historical evidence about them is surprisingly thin. *Robert I* married the daughter of a Bristol freeman, claiming his freedom in 1660 on this basis, and died between 1680 and 1687. He exported pipes at least on a small scale: a pipe from the Saugus Ironworks in Massachusetts for example (see below), though lacking its bowl, is attributable to him on the occupation dates of the site - 1646-early 1670s - which would also agree with the general dating implied by the heel-mark used. His wife, still alive in 1696, exported more frequently, and her products, typologically later than those attributable to her husband and datable to the decade or so on either side of 1700, have been found on sites in Canada and the United States. *Robert II* (B 1660, F 1678, fl 1713, either he or son Robert III fl 1720) built up a major business, including an "export only" pipe style, and his products and presumably those of a shadowy son *Robert III* (B 1692?, F 1713, either he or father fl 1720) had a vast market and are known from contexts as late as 1760, having been found in Canada in Newfoundland, Nova Scotia, New Brunswick, and Quebec; and in Maine, Massachusetts, New York, Pennsylvania, Michigan, Delaware, Virginia, North Carolina, South Carolina, Florida, Alabama, Mississippi, Tennessee, and (possibly) Louisiana; as well as in Jamaica.

Not surprisingly, Robert Tippett II appears to have been comfortably off: in 1696 he is listed with his family and widowed mother J(o)ane living in Lewin's Mead, which was certainly a reasonably well-to-do area 80 years later when it still had several pipemakers living there (Section VI above). He also had a servant girl, Mary Holden, as well as two apprentices, in 1696 (Ralph and Williams (eds) 1968: 54).[71] (Pipemaker Robert Nunney and his family lived next door to the Robert Tippets in 1696, and pipemaker William Tippet sr (A 1680, F 1689/90, fl 1727/8, either he or son William jr fl 1739), Robert II's younger brother, and his family also lived in Lewin's Mead, further suggestions that pipemaking was a profitable trade by this time). If, as would have been normal practice at the time, Robert Tippet had a workshop in his home, his business must have been considerable, for judging by the many Tippett-marked and unused pipes found dating from the late C17 and to mid C18 it must undoubtedly have been also his kilns which were found in Whitson St when the bus-station was being built and in Rosemary St when that was demolished. This reinforces the general impression that the Tippet family business was big enough to be considered a major enterprise, and certainly not just a humble home industry. Indeed, there is a disquieting possibility (noted above pp617-8) that the widespread occurrence in North America of Robert Tippet pipes in North America in contexts up to 1760 despite the lack so far of any documentary references to the Robert Tippets after 1720 may be in part due to a production latterly of Robert Tippet-marked pipes by some other Bristol maker. If tax paid on real estate by those living in the Lewin's Mead area is a guide to social status, however, the Robert Tippets were probably of middling class - most of those in the area paid ca.2s6d but some paid ca.£1 while the Tippets paid 5s - though much more would would have to be done before general conclusions could be drawn (Ralph *in litt.* 9 September 1970).

The sites at which Robert Tippet pipes have been found are as follows (FIG 158):

Canada - Newfoundland

Placentia, nr the SE corner of the island, SW of St John's (Grange 1971: 535, 536-7, 1963 fig 100,h-i,k);

Nova Scotia

Louisbourg, eastern Cape Breton Island - nine examples (I. Walker 1971c: 73, 76 and 78, 104, 111, figs 18, 19, 45);

Beaubassin, on the Nova Scotia-New Brunswick border (Davoud, now MacLean, 1969b: 10-11, 15, figs 8, 9, 20, 21);

various Acadian sites in Nova Scotia (Calver 1931: 93);

New Brunswick

Fort Beauséjour, on the New Brunswick-Nova Scotia border (MacLean 1971: 22-3, 64 figs 5, 6);

Fort Gaspareaux, nr Port Elgin, extreme eastern New Brunswick (Wylie 1968: 15-16, 21, 20, 30, 31, fig 10);

Quebec

the Restigouche underwater site in the Baie des Chaleurs, on the Quebec-New Brunswick border (at least 15 fragments from 1969 excavations in the National Historic Sites Service's collection);

the St Francis Xavier IV site at Caughnawaga, on the opposite side of the St Lawrence from Montreal (Béchard *in litt.* 15 July 1968);

Fort Senneville, at the west end of Montreal Island (examples seen during visit to Royal Ontario Museum's excavation August 1971);

U.S.A. - Maine

Pemaquid (Mrs H. Camp *in litt.* 27 July 1966; H. Camp 1968: 11 fig 5 second line);

Massachusetts

Saugus Ironworks (Fowler 1955: 45, 44, fig 14.2 and 1965: 16);

the Joseph Howland site - 13 examples (M. Brown III 1972: 8; cf Deetz 1960a: third page);

the Bartlett site, Plymouth - four examples (M. Brown III 1972: 7);

East Harbor Village, Truro, nr north end of Cape Cod (noted in Omwake 1962: 9);

Rhode Island

the Jireh Bull site - five examples (M. Brown III 1972: 9-10);

Connecticut

the Hoyt-Barnun House site, Stamford (Poirier 1974: 13);

New York

A large number of sites both European and Indian (cf Calver 1931: 91 and 93) - Onondaga, Oneida, and Mohawk - in central and upper New York state (E.A. Barber 1880b: 122 and 1882b: 199; Beauchamp 1898: 116; Hagerty 1969 and various personal communications);

Fort Ticonderoga, on Lake Champlain and the route north into Quebec (Gifford 1940: 128-9, 122 fig 14);

Fort William Henry, at southern end of Lake George, between Fort Ticonderoga and Albany (noted in Omwake 1962: 9);

Fort Niagara, extreme western New York state, where Niagara river enters Lake Ontario (noted in Omwake *loc. cit.*);

the Pen site, an Onondaga village SE of Syracuse in central New York state destroyed by Frontenac in 1696 (Hagerty *in litt.* 27 January and 3 February 1969);

Rome, east of Utica (Hanson 1971b: 94, 95 fig 2,d);

Schuyler Flatts site, just north of Albany (McCashion *in litt.* 21 August and 11 September 1971);

Douw Point, Rensselaer, on the opposite side of the Hudson from Albany (McCashion *in litt.* 9 November 1971);

the Seven Mile House site, between Schenectady and Albany (noted in Omwake 1961: 13);

in Montgomery county, west of Schenectady (E.A. Barber 1882c: 3);

the Sleepy Hollow restoration at Tarrytown, north of New York City (*ex info.* Miss P.E. Smith at the spring 1971 conference of the Council for Northeast Historical Archaeology at Bear Mountain, New York state);

Manhattan, New York City (Oswald *in litt.* 21 February 1972);*

the Schurz site, Bronx county, New York City (Omwake 1958: *passim*);*

the Whitestone Bridge site, Bronx county, New York City (Oswald 1959a;*

the Travis site at Travis, west side of Staten Island (Burgher 1940: 84; Omwake 1961: 12, in which latter reference the site is erroneously put on Long Island);

New Jersey

the Wilder Mons Kerk Hof site, nr Old Tappan in the extreme NE corner of the state - at least two dozen examples (T. Demarset, "The Wilder Mons Kerk Hof, a Historic Indian Site in the Upper Hackensack Valley", paper presented at the 1972 spring symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state);

Van Duyne House site, Wayne (Lenik *in litt.* 13 December 1974);

Pennsylvania

in Wyoming county, west of Scranton (H. Wright 1881; cf E.A. Barber 1882a: col 4 and 1882b: 199);

in an Indian grave in Chester county, west of Philadelphia (E.A. Barber 1880a: 6 and 1882b: 199);

in a similar grave in Lancaster county, adjacent to the west of Chester county (E.A. Barber 1882b: 199);

Indian settlement of Conoy Town, nr Bainbridge in Lancaster county on the Susquehanna south of Harrisburg (B. Kent 1971: 13);

Michigan

Fort Michilimackinac, Mackinaw City, where Lake Michigan joins Lake Huron (Maxwell and Binford 1961: 109; Omwake 1962: 11, nos F and G in illus.; also Petersen 1963a: 2 and 1963b: 4, illus. no 21);

possibly at Fort St Joseph, nr Niles in the extreme SW corner of the state, near the Michigan-Illinois border (reference in Quimby 1942: 545-6 to pipes "with 'TD' or 'RT' stamped on the bowls...in the collections from the Angola farm [Louisiana] and Fort St. Joseph": the article is a comparison of trade goods in Michigan and Louisiana, but the vagueness of the wording leaves it uncertain whether both TD *and* RT pipes were found in *both* states);

---

*Cf reference to Tippet pipes from "Upper New York City" in Calver 1931: 93.

Delaware

Lewes, in the SE of the state (illustrated in Oswald 1959a: 60 fig 2,A);

Maryland

St Marys City, on the north shore of the Potomac estuary nr its junction with Chesapeake Bay (Oswald *in litt.* 21 February 1972);

Sinepuxent Neck (Omwake 1946: 17);

Virginia

the Hallowes site (Buchanan and Heite 1972: 45, 44 fig 4,L) - a probable Robert Tippet stem fragment;

Clay Bank (I. Noël Hume 1966a: 14, where it is described as being marked I/TIP/PET; I am extremely grateful to Noël Hume and to C.M. Watkins of the Museum of History and Technology, Smithsonian Institution, Washington, for sending me the fragment in question, which I feel fairly certain originally read IR/TIP/PET (see below) with the R deliberately removed in the trimming process);

Williamsburg (noted in I. Noël Hume 1962: 220-1 n.96; Alexander *in litt.* 11 July 1971);

Tutter's Neck, south of Williamsburg and east of Jamestown (I. Noël Hume 1966b: 54);

Green Spring Plantation (Caywood 1955b: upper rt section, extreme end of second row) - a probable Robert Tippet stem fragment;

Jamestown (Cotter 1958: 70; J.P. Hudson *in litt.* 6 November 1967);

Newport News (Pearce *in litt.* 24 December 1963);

North Carolina

Brunswick Town, 16 miles south of Wilmington and on the east bank of the estuary of the Cape Fear river (South *in litt.* 31 August 1965);

South Carolina

Charles Towne, on the opposte - south - side of the Ashley river from the modern Charleston (seen while attending Eleventh Annual Conference on Historic Site Archaeology, Columbia, South Carolina, October 1970);

Fort Moore, on the South Carolina side of the Savannah river opposite Augusta, Georgia - at least a dozen here (*ex info.* R. Polhemus, Department of Archaeology and Anthropology, University of South Carolina, Columbia);

Florida

the Higgs site nr Wabasso, ca.50 miles south from Cape Kennedy or Canaveral on the east Florida coast (Higgs 1942: 38; H.G. Smith 1949: 18 and 1951: 9-10);

Santa Rosa Pensacola, nr Fort Pickens on the south side of Pensacola Bay south of Pensacola on the Gulf of Mexico (Omwake 1965d: 47);

Alabama

Indian sites on the Tallapoosa River, in the east-central part of the state (editor's note in Bailey 1936: 49);

the Childersburg site, nr Childersburg ca.30 miles SE of Birmingham (Kurjack 1961: 22);

Mississippi

the Tunica Treasure site, somewhere in the area ca.30 miles south of Natchez (Brain 1970 for general information; mark on the single clay pipe found Brain *in litt.* 8 April 1971);

Tennessee

the Chota site, approximately half-way between Nashville and Chattanooga (*ex info*. R. Polhemus);

a site in Williamson county on the Big Harpeth River, ca.30 miles south of Nashville (Polhemus *in litt.* 25 January 1971);

Louisiana

possibly at a site on a farm at Angola, West Feliciana parish, on the east bank of the Mississippi north of Baton Rouge (ambiguous reference in Quimby 1942: 545-6 - for the argument see the entry above for possible Robert Tippet pipes from Fort St Joseph, Michigan);

West Indies - Jamaica

Port Royal (Omwake *in litt.* December 1966; Oswald 1968: 71-7 nos 160-79, poss. excluding nos 160, 162, 170; 1969: 49-63 nos 112-25 excluding 121 and poss. 112).

Of this vast extent of Robert Tippet pipes only two certain examples, and a further three probables, are known to this writer which can be attributed to Robert I. One definite example is from the Saugus Ironworks, Boston, Massachusetts. The type of lettering for the RT mark - in this case on the heel - is identical to that on all RT-marked Tippet pipes, and the occupation dates for the Saugus Ironworks are 1646-early 1670s. The placing of the RT on the heel is paralleled on finds from Bristol which again typoligically must be products of the first Robert Tippet. The other definite example is the same type of marked heel, from Pemaquid, Maine (seen by writer on visit there November 1972). The probable Robert Tippet stems from the Hallowes site and Green Spring Plantation, both in Virginia, however, would also be attributable to Robert I. These stem fragments have the letters RT on them between two pairs of rouletted lines with the rest of the space filled by impressed diamonds a la Llewellin Evans and the William Evanses products (see above); this form of marking does appear to be distinctively Bristol and the other pipe material from the sites include pipes made by the Evanses, indicating contexts into which Robert Tippet I would fit. No Tippet pipes from Bristol are known so far to be thus marked, but the William Evans F 1667 did finish his apprenticeship with Robert Tippet I. The pipe noted at Jamestown is probably also a product of the first Robert Tippet, but unfortunately no more detail is given than that it had the letters RT on its heel - its context was a deposit for which artefact dating evidence suggested a long life, from the second half of the C17 well into the C18 and possibly into the second half (Cotter 1958: 78-9).[72]

Products of J(o)ane Tippet are identified by their having I (representing J) or I- preceding the R of the name R. Tippet inside the medallion mould-imparted on the right side of the bowl which is the standard identification, generally along with the letters RT impressed facing the smoker, of second- and third-generation Robert Tippet pipes (Oswald 1959a: 61). The name inside the medallion was set out, and indeed spelled, in more than one way: J(o)ane Tippet pipes appear to have characteristically used the spelling and form TIP/ET, while Robert Tippet pipes seem always to have used a double p and set out the name either TIPP/ET or TIP/PET (for a selection of illustrations see Appendix IX).

There is one certain J(o)ane Tippet pipe from Louisbourg, Nova Scotia, marked IR/TIP/ET (I. Walker 1971c: 76, 78, 79 fig 18 btm centre, 73); another marked I-R/TIP/ET from Beaubassin, New Brunswick (Davoud, now

MacLean, 1969b: 15, 26 fig 20); three from Whitestone Bridge, New York, two of them marked IR/TIP/ET and one I-R/TIP/ET (Oswald 1959a: 60 fig 2,B-D); one from Manhattan marked I-R/TIP/IT [sic] (Oswald *in litt.* 21 February 1972). There is also a pipe from Clay Bank, Virginia, probably originally marked IR/TIP/PET (I. Noël Hume 1966a: 14; see further above). The examples from Louisbourg and Clay Bank had the front[73] of the bowl broken, so that it was impossible to tell what letters, if any, had faced the smoker; the Beaubassin example was sufficiently whole to show that it had no letters facing the smoker; the Manhattan example also had no letters facing the smoker; while of the Whitestone Bridge examples two had PT facing the smoker and one TP - unfortunately it is not stated which pipes had which of these impressed marks. One of the IR/TIP/ET pipes from Whitestone Bridge had a raised corded circle surround instead of the more usual plain raised circle; the Beaubassin example with its first line of I-R also had a raised corded circle surround.[74]

Although the Tippets have by far the widest distribution of Bristol pipes in North America they are by no means the only Bristol makers whose pipes occur there between the closing decades of the C17 and about the middle of the C18. Products of the following makers - listed in chronological order of their freedom - have been archaeologically recovered (FIG 159):

I. Abbott (presum. James F 1676/7, fl 1715, D by 1721/2) -
 Port Royal, Jamaica (Oswald 1968: 17 no 9);

William Taylor (A 1681/2, F 1688/9, fl 1706, D by 1721) -
 Port Royal, Jamaica (Oswald 1968: 69 nos 158 and 159; 1969: 55 no 126);

John Hunt (one or both of two brothers with the same name, sons of Flower Hunt, one F 1689 the other A 1685/6 and F 1694, at least one fl 1715, poss. fl 1716/7) -
 Port Royal, Jamaica (Omwake *in litt.* December 1a66; Oswald 1968: 47 nos 89 and 90);

Devereaux Jones (one or both of father A 1684, F 1691, fl 1713, D by 1727 or son F 1727, fl 1739, D by 1748) -
 Port Royal, Jamaica (Oswald 1968: 47 and 49 nos 94-6; 1969: 35 no 67);

Charles Chick (A 1688, F 1697, fl 1707, D by 1721/2 according to Burgess Rolls but listed in 1722 poll-book) -
 Port Royal, Jamaica (Omwake *in litt.* December 1966; Oswald 1968: 25 no 29);

Thomas Owen (one or more of three makers of this name - father A 1688/9, fl 1696, F 1698, D by 1725; son F 1725; or third Thomas A 1716, F 1727 - second and third Thomas both fl 1739) -
 Beaubassin, Nova Scotia (Davoud, now MacLean, 1969b: 12, 23 fig 12 - the letters on the side of the pipe facing the smoker are described and illustrated as being "TD", but they are "TO");
 the Pen site, SE of Syracuse, New York state (Hagerty *in litt.* 27 January and 3 February 1969);
 Jamestown, Virginia (Cotter 1958: 239);
 Port Royal, Jamaica (Omwake *in litt.* December 1966; Oswald 1969: 53 nos 107 and 108; 1969: 39 and 41 nos 83-5 and poss. 82);

Isaac Evans (fl 1696, F 1698, fl 1700/1) -
Williamsburg, Virginia (Alexander in litt. 11 July 1971);
Port Royal, Jamaica (Omwake in litt. December 1966; Oswald 1968: 39 and 41 nos 67-8, 70-3, poss. some of 31 and 33 nos 45-9; 1969: 27 and 29 nos 46-9 and 51, poss. some of 19 and 21 nos 23-5);[75]

Henry Edwards (A 1689, F 1699, fl 1727) -
Placentia, Newfoundland (Grange 1971: 536, 1963 fig 100,j);
St Francis Xavier IV site at Caughnawaga, Quebec (Béchard in litt. 15 July 1968);
Port Royal, Jamaica (Omwake in litt. December 1966; Oswald 1968: 37 and 39 nos 61-5; 1969: 25 and 27 nos 40-5);

Henry Hoar (prob. A 1688, fl 1696, F 1699, fl 1723, D by 1739) -
Williamsburg, Virginia (Alexander in litt. 11 July 1971);

John Masey (either father A 1691, F 1700, fl 1726 or son F 1723, one of them fl 1726 and D by 1738) -
Port Royal, Jamaica (Oswald 1968: 51 no 104);

Edward Reed (A 1699, F 1706, fl 1723, poss. fl 1735) -
Louisbourg, Nova Scotia (I. Walker 1971c: 80-1 refers, while discussing a possible Edward Randall jr pipe - see below - to a pipe with ER facing the smoker and a cartouche with an indecipherable name inside it, only what appears to be an O being visible at the end of the middle line: this is probably an Edward Reed pipe);
St Francis Xavier IV site at Caughnawaga, Quebec (Béchard in litt. 15 July 1969);
Port Royal, Jamaica (Omwake in litt. December 1966; Oswald 1968: 63 nos 138-41; 1969: 4 45 and 47 nos 98-102);[76]

I. Jenkins (prob. either James A 1700, F 1707, fl 1739; or son John F 1739 prob. too late. Joseph F 1768, fl 1784 definitely too late) -
Port Royal, Jamaica (Oswald 1968: 49 no 97; 1969: 35 no 48);

John Wilson (F 1707, fl 1722) -
Port Royal, Jamaica (Omwake in litt. December 1966; Oswald 1968: 81 no 192; 1969: 55 no 131)

George Ebbery (F 1721, fl 1781) -
Fort Beauséjour, New Brunswick (MacLean 1971: 26-7, 67 fig 12);
Fort Michilimackinac, Michigan (Omwake 1962: illus. fig J; Petersen 1963a: 5 top illus. and 1963b: 1st pl fig 1);
Williamsburg, Virginia (Alexander in litt. 11 July 1971);
Port Royal, Jamaica (Oswald 1968: 31 no 43);

William Nicholas (A 1723, F 1730, fl 1775) -
Fort Beauséjour, New Brunswick (MacLean 1971: 23, 53, 64 fig 7);
Port Royal, Jamaica (Oswald 1969: 55 no 128 and prob. 1968: 89 no 217 which is the same as 1969: 65 no 158);

William Foord (A 1723, F 1733, fl Bristol 1740/1, poss. left Bristol bef. 1748, fl London 1754) -
Pemaquid, Maine (Mrs H. Camp in litt. 19 December 1972);

Thomas Grant (A and F dates unknown, fl 1748/9, D by 1751) -
Schuyler Flatts site, Albany, New York state - T/GR/ANT in a cartouche (McCashion in litt. 11 September and 4 December 1971);

George Viner (A 1740, F 1747, fl 1757, D by 1775) -

Douw Point, Rensselaer, New York state - G/VIN/ER and G/VY/NER in cartouches (McCashion in litt. 11 September and 4 December 1971).

In addition, a stem fragment marked VI/NER/BRIS/TOL in typical Broseley fashion was recovered from Louisbourg, Nova Scotia, in a 1758-68 context (Lindsay in litt. 8 November and 6 December 1972). As noted below (p. 679) Anna Viner, George's widow, is also known to have exported to North America, and as this Louisbourg stem bears no first name or initial it could have been a product of either Viner. The closely-dated context unfortunately does not help here, because George Viner is last noted in 1757 but Anna Viner is not recorded until 1775, leaving an 18-year gap sometime during which George must have died. However, the two definite Anna Viner finds can be attributed to within her known dates of working, 1775-1805, so that it is possible the Louisbourg fragment may in fact be a product of George.

There are also two pipes from Port Royal, Jamaica, which can with confidence be attributed to Bristol makers, though in each case the first-name initial is missing, making precise identification of the maker impossible. One is a Bristol heel-less type 9 bowl form with the name LEW/IS inside a circular medallion on the side of the bowl in typical Bristol style (Oswald 1968: 39 no 100), and this can be ascribed to one of several Lewises working in Bristol in the late C17 and earlier C18.
Possible makers are:
John I - F 1669, fl 1690, D by 1696;
Edward II - F 1678/9, fl 1722;
Francis - F 1691, fl 1722, D or left Bristol by 1736, son of John Lewis I;
Susannah - fl 1696-1707, widow of John Lewis I and mother of Francis.
A bowl of the same shape as that from Port Royal but with the medallion reading E/LEWIS/* (fig p) in the Bristol museum collections must be a product of Edward Lewis II.

The other Port Royal bowl, as noted when discussing changes in type 9 bowl form above (home trade), has EDW/ARDS in a rather elaborate cartouche comprising a circle of dots with some sort of floral and fan or shell motif at the foot (Oswald 1968: 37 no 60). Unfortunately, the upper part of the bowl is missing, preventing a definite attribution of bowl shape and possibly removing letters before the name Edwards in the cartouche. The bowl-form may have London type 9 influence, and the relative elaborateness of the cartouche might suggest a later C18 date; a similar bowl with the same name and also sans first-name initial but with foliage and similar decoration on the bowl is in the Bristol collections (seen in Bristol City Museum by this writer November 1973). Assuming a later C18 date for the Port Royal example, a number of Bristol Edwardses can be considered likely makers. They are:
Jonas jr - F 1747, fl Bristol 1754, fl London 1774-84, grandson of the Henry Edwards F 1699 noted above;
John - A 1740, F 1747, brother of Jonas jr;
Joseph sr - F 1747, fl 1792, brother of Jonas jr and John;
Joseph jr - F 1774, fl 1823, son of Joseph sr;
John - F 1784, fl London 1784-1812, not known to be related to the above three or the other Bristol Edwardses (Philip sr and descendants).

Another Bristol maker whose products reached North America is the unknown person with the initials IS who used as a mark his initials on the stem in a row of impressed diamonds bordered by double dashed or sometimes (possibly when the denticulated blade slipped) scored, a la Llewellin Evans and the William Evanses. As noted in the section on home trade above there are at least five makers with these initials covering the period ca.1690-1720 suggested by a bowl on an example in Bristol museum from that city, but the most likely makers are *John Sinderling* (A 1653, F 1668, fl /1696, D by 1699 - prob. in the autumn of 1699) and *John Squibb* (F 1704/5, fl 1734). Stems with this form of mark occur at Pemaquid, Maine (Mrs H. Camp *in litt.* 27 July 1966; H. Camp 1968: 11 fig 5 sixth line), at Portsmouth, Rhode Island (M. Brown III 1972: 6, fig 3,9) and at the Hunting Creek midden site, Maryland (Flegel 1964: 7, pl. II fig B); the contexts of the latter two are third quarter of the C17 in date with Philip Edwards, Llewellin Evans, and William Evans material but none of the Tippet pipes typical of the late C17 which suggests the maker of the IS-marked fragment is more likely to have been Sinderling than Squibb.

Stems with this same decoration of impressed diamonds and pairs of dashed lines but with the initials IP occur at the Salisbury site, New Jersey (Cross 1941: pl 25b,10), and Port Royal, Jamaica (Oswald 1968: 105 no 107); but as noted above when discussing this form of decoration in the section on home trade no examples have been recovered in Bristol. As noted above, three Bristol makers with these initials could fit the ca.1650-80 period suggested by the definitely Bristol pipe material at the Salisbury site - *Jacob Prosser* (A 1655 F 1662/3 fl 1680), *John Prosser* (F 1673), and *John Poyte II* (F 1680 fl 1715) - but until IP-marked stems are recovered in Bristol an attribution to any of these makers cannot be firmly made.

It is possible too that products of *Charles Hickes* (A 1714 F 1721/2 fl 1740 D by 1747?) reached North America. Unfortunately a lack of Bristol finds attributable to this maker prevents certain identification, but a Bristol type 9 bowl with the letters CH impressed facing the smoker in typical Bristol fashion is at Gloucester City Museum and Art Gallery and if it is indeed a Bristol product Charles Hickes appears to be the only possible maker. Similarly-marked bowls come from Pemaquid, Maine, one at least in a first-half-of-the-C18 context (Mrs H. Camp *in litt.* 27 July 1966 and 16 March 1972; H. Camp 1968: fig 5 second line) and from Port Royal, Jamaica (Oswald 1968: 43 no 80, repeated in 1969: 31 no 59).

One Bristol maker whose products probably did reach North America is *Edward Battle* (A 1651, F 1660, fl 1669), the elder Philip Edwards's first apprentice, for pipes marked EB have been found widely in the eastern United States (FIG 160). Unfortunately, however, it is difficult to identify definite Battle products in the Bristol collections (see preceding section). The EB-marked pipe of a distinctly Bristol bowl form at Abergavenny and District Museum (preceding section) seems the most probable example of a Battle pipe, but no EB-marked pipes of this shape are known to this writer from North America. To confuse matters, the letters EB were being used as a mark by the Dutch by 1664 (Helbers and Goedewaagen (1942: 16, 47) note the first recorded use of these letters at Gouda in 1672, but as is noted below, a pipe with this mark was recovered from the wreck of a Dutch ship which sank in 1664) and C17 Dutch pipes occur widely in parts of eastern North

America, the Dutch themselves trading with their New Netherland colonies in what are now New York state, New Jersey, and Delaware from the 1610s until 1664 and again in 1673-74 before the Treaty of Westminster of the latter year ended the Third Dutch War and finally gave these colonies to Britian, the Swedes using them in New Sweden - Delaware and southern New Jersey - 1638-55 (see p.306 above) between its periods of Dutch occupation, and the French using them in New France (e.g. examples from place Royale, Quebec City (Lafrenière and Gagnon 1971: 90 photo 62, top left and btm rt bowls)).

The difficulty in deciding whether various EB-marked pipes in North America are Dutch or English is heightened by their occurrence in areas known to have received Dutch trade - New York, Connecticut, and Pennsylvania, for example - and by a frustrating tendency for them to occur on sites with both Dutch and Bristol pipe material.

For example, at the Townsend site near Lewes, Delaware, a fragment was found with the letters EB raised on the heel in company with three fragments bearing the stem-marking of Llewellin Evans (see above) and a bowl bearing the Gouda mark of the Milkmaid on its heel (Omwake 1963a: 41-2, pl 11B, 1-4). At the Sullivan or Moot site near Munnsville, south of Oneida in the Mohawk valley, northern New York state, EB-marked bowls, in this case certainly Dutch-looking, occurred along with fleur-de-lis-marked stems which are certainly Dutch (see p.347 above) and a possible Sir Walter Ralegh bowl, which would also certainly be Dutch (see 1: II(h)); but the finds also included a Philip Edwards-marked bowl (see above) (Bennett and Cole 1973: figs 16 and 23). Again, at Fort Shantok, an Indian village on the Thames south of Norwich in SE Connecticut, a pipe with a raised EB on the heel occurred with other material which included West Country "chinned" bowls (of the same family as those favoured by the John and Flower Hunt - see preceding section and entries in Appendix IX) and some type 9 examples which could also have been Bristol made, but which also include a fleur-de-lis-marked stem (Salwen 1966: 27-35, figs 10-11). At the closely-related Indian site of Fort Corchaug on Long Island, New York, just across Long Island Sound from Fort Shantok, an EB-marked pipe occurred in association with on the one hand pipes made by one of the Philip Edwardses (see above) and at least one unmarked example of the West Country "chinned" bowl-shape referred to when discussing the Fort Shantok material, and on the other with the same Dutch fleur-de-lis stem fragments as at Fort Shantok (Solecki 1950: 32, 31 fig 18,n).[77] (EB pipes are also known from Fort Massapeague, near Massapeaque on the south shore of Long Island, west of Greater New York (Omwake n.d. 4, 21-4).)

At the colonial midden excavated at Portsmouth, Rhode Island, no fewer than ten EB-marked fragments involving three variants of the mark and all but one on the base of heelless bowl fragments were found (M. Brown III 1972: 3-4, fig 2,1 and 2). The other Portsmouth material included five Llewellin Evans-marked stems and like number of bowls, three William Evans-marked bowls and five stems, and two Philip Edwards-marked fragments (see above), as well as considerable quantity of unmarked "chinned" bowls of the Bristol-West Country style; but again there is at least one Dutch bowl, which has the Goblet mark found along with other Dutch material and an EB-marked fragment at the Oscar Leibhart site in Pennsylvania (see below). Unfortunately all ten EB-marked fragments from Portsmouth are too fragmentary for their bowl shape to be seen.

At the *Salisbury site near Swedesboro, New Jersey*, a pipe with a raised EB on the heel occurred along with James Fox stems and Llewellin Evans bowls and stems (see above), and also with fleur-de-lis marked stems and roulette-ornamented Dutch stems (Cross 1941: pls 25a and 25b; for a discussion of roulette-ornamented Dutch stems see I. Walker 1971c: 82-5). At *Jamestown, Virginia*, where as noted above a number of Bristol makers can be identified - James Fox, Llewellin Evans, the William Evanses, the Philip Edwardses, John Abbot, Robert Tippet I - EB pipes have occurred (J.P. Hudson *in litt.* 6 November 1967; also South 1971: 42 citing I. Noël Hume *in litt.*), but fleur-de-lis and other decorated stems probably Dutch also occurred at Jamestown (Cotter 1958: *passim*); further, Hudson also noted the crowned EB mark and this is certainly Dutch (Helbers and Goedewaagen 1942: 245).

At *Port Royal, Jamaica*, EB pipes occurred (Omwake *in litt.* December 1966; Oswald 1968: 19 no 15; 1969: 15 no 6), but though there was a vast variety of Bristol material (see above) there was also an appreciable amount of Dutch, including the ubiquitous fleur-de-lis stems (Oswald 1968: *passim*; 1969: *passim*); indeed, if the drawings of the two EB pipes illustrated in Oswald 1968 and 1969 are reasonably accurate, they appear more likely to be Dutch than English.

EB pipes have occurred particulary frequently on C17 Amerindian sites in central and western New York state (E.A. Barber 1882b: 199 where they are described, presumably wrongly, as being of terracotta; 1882c: 3; Beauchamp 1898: 116; Wray and Schoff 1953: 57, 58, 59; Tuck 1971: 184; Wray 1973: 15 and fig 15-2 and -3; Hagerty various personal communications; Omwake n.d.: 5, 17-20);[78] but until Wray's recent publication accompanied with coloured slides (Wray *loc. cit.*) there has been a lack of description or illustration in the published sources. From unpublished drawings and accounts, and in some cases personal examination of specimens, it is apparent that at least some are Dutch, which in view of Dutch trade in this area through their posts at Nieuw Amsterdam (New York) and Fort Orange (Albany) is in no way surprising. In the case of sites noted by Hagerty, fleur-de-lis decorated stem-fragments were frequently associated with these EB bowls. Wray (*loc. cit.*) illustrates two types of EB pipe bowl-forms, one of which (fig 15-3) is certainly Dutch, though probably rather later than the ca.1660-75 date attributed to it, while the other (fig 15-2) is somewhat earlier - Wray dates it to ca.1645-60 - and has no real distinguishing features for identification in its shape, though it is most probably also Dutch.

Excavations at present in progress on the site of *Fort Orange* have turned up fleur-de-lis marked stems and two types of EB-marked bowls, one at least of which - a distinctive parallel- or nearly-parallel sided bowl, rather larger than the average Dutch bowl (FIG 118), which has been discussed earlier (pp 269-70,624 above) as a possible origin for alleged Dutch influence on certain English bowl-forms - is undoubtedly Dutch (McCashion *in litt.* 21 August and 11 September 1971). Certainly, pipes of a more conventionally Dutch bowl-shape have come with an EB heelmark, sometimes crowned, from C18 contexts at *Louisbourg, Nova Scotia*, (Hanson 1968: 20, 59 fig 20,I; Hanson and Shott 1968: 40, 127 fig 32,I).

At the *Oscar Leibhart site, on the west bank of the Susquehanna river in SE Pennsylvania, east of York*, a pipe fragment with the letters EB raised from the heel was found with a number of other pipe fragments, all identifiable examples (with the exception of an C18 stray) being Dutch (Omwake 1959). Again, as with the central New York sites referred to above, the Oscar Leibhart site falls chronologically and geographically within the sphere of Dutch trade.

EB pipes were found during the excavations at Charles Towne, South Carolina (South 1971: 42), and for once they do not appear to have been associated with fleur-de-lis or other Dutch material. Charles Towne, the precursor of the modern Charleston, was founded by the English in 1670, but by the end of the decade the settlers had moved across the Ashley river to the site of the modern city. It seems reasonable, therefore, to suggest these EB pipes would fit chronologically and by cultural affiliation as English. Oswald (1960a: 27) notes only one other English maker this early with these initials, Edward Biggs who was working at Henley-in-Arden, a Warwickshire village, and whose products are unlikely in the extreme to have gone more than a few miles from where they were made. As noted above (p.643) Bristol had a flourishing trade with the Carolinas from the 1660s, and the Robert Tippet pipe from the site (see above), while dating to a later period than the settlement, and the Robert Tippet pipes from Fort Moore (see above) no doubt represent this trade. A number of the EB pipes from Charles Towne were found in association with Indian material, and as this latter must have preceded the English settlement the pipes, if the association is correct, could date to before 1670, but they could still be the result of the Bristol trade with the Carolinas noted above.

The writer examined some of these fragments while attending the Eleventh Annual Conference on Historic Site Archaeology at Columbia, South Carolina, in October 1970, but was unable to say definitely whether they were English or Dutch, though typologically they undoubtedly belong to the later C17. They certainly did not belong to any of the distinctive Bristol or West Country shapes of this period, for example that used by a number of Bristol makers ca.1640-70 - Edward Lewis, Thomas Monkes, Richard Nunney (at times), the Philip Edwardses, Robert Tippet I (at times) - nor to the "West Country chinned" style used for example by John and Flower Hunt in the 1650s and 1660s, nor to the various shapes used at times by Llewellin Evans and one or both of the William Evanses in the 1670s-90s (for details of these shapes see entries in Appendix IX). None of this, of course, is conclusive and it does seem reasonable to assume these Charles Towne examples are most likely to be the elusive products of Edward Battle.

Certainly the two examples from Port Royal noted above appear more likely to be Dutch than English; in most of the other cases even when enough of the bowl survives, however, it is not possible to be certain of nationality. (Essentially, the problem is that not enough EB-marked pipes have been recovered in Bristol to enable a corpus of convincingly-attributable Edward Battle pipes to be compiled and that there is a lack of published illustrations and descriptions of indubitably Dutch EB-marked pipes either from The Netherlands or from Dutch colonial sites. However, with the amount of urban archaeology now being done in Bristol the chances of finding Battle pipes are greatly improved, and if the Fort Orange pipe material is eventually published the lack of Dutch EB pipes will be remedied. One certainly Dutch EB pipe is an example recovered from the wreck of the Kennermerland, a Dutch East Indiaman wrecked off Shetland in 1664 (Price and Muckelroy 1974: 265-6, 265 fig 7; for background see Forster and Higgs 1973), but the drawing is not of the best and though the pipe is virtually entire - the stem is a good eight ins long - the vital topmost part of the bowl is missing. This find is particularly interesting because the hitherto earliest-known date for Dutch EB pipes, as noted above, was 1672. The EB heel-mark (no bowl-shapes shown) from the Mullion Cove wreck off Cornwall noted when discussing English finds of EB-marked pipes (p.606 above) is probably Dutch, to judge from two possible identities of the ship, though had the ship called at Bristol prior to foundering the pipes could obviously be Edward Battle products.)

Other Bristol makers whose products may have reached North America are the Edward Randalls (father F 1668, fl 1687, D by 1689 and son A 1689, F 1699), though it is difficult to separate pipes likely to be of their manufacture from those likely to have been made by Edward Reed already noted above, A 1699 F 1706 fl 1723 poss. fl 1735, and therefore contemporary with the younger Randall. Definite Reed products have E/REED in a cartouche on the right side of the bowl in the typical Bristol fashion of the time; in addition they sometimes have the letters ER impressed on the bowl facing the smoker (see Oswald 1968: 63 nos 138-41; 1969: 45 and 47 nos 98-102).

The problem is to decide whether bowls marked only with the ER facing the smoker, or with that and the same letters moulded in a cartouche on the right side of the bowl, or with only that cartouche, are more likely to have been products of Reed or one of the Randalls. This problem is also discussed in the section above on home trade: a bowl from Port Royal, Jamaica (Oswald 1968: 69 no 126), with ER facing the smoker and the same letters in the cartouche could typologically be dated as early as the 1680s and therefore attributed to Randall sr rather than to Reed; but a bowl of the same shape but with a spur instead of the heel also from Port Royal cannot be much later and it is indubitably a Reed product as it has that maker's name in its cartouche (fig b). The letters ER facing the smoker also occur on another pipe typologically datable to ca.1680 but of a different shape and with no cartouche from Portsmouth, Rhode Island. The bowl is probably the same shape as that apparently used by James Fox of Bristol noted above (M. Brown III 1972: 8; the bowl shape is illustrated in fig 3,7). That pipes with ER on the bowl facing the smoker are Bristol made, whether by one of the Randalls or by Reed seems certain because these letters also occur in that position on pipes which have the cartouche of Isaac Evans and Henry Edwards, two Bristol makers of this period (see above), the former fl 1696 F 1698 fl 1700/1 and the latter A 1689 F 1699 fl 1727. These and other combined marks are discussed below.

An additional problem is the possibility (Oswald 1960a: 48; Oswald and Atkinson 1969: 186, 187 fig 5,23-5) that the Edward Randall noted taking an apprentice in London in 1719 is Edward Randall jr of Bristol; however, this problem has been discussed at length above when dealing with home trade and the conclusion is that there is no definite evidence to suggest the two Randalls are the same person.

Excluding ER-marked pipes also bearing the cartouche of Edward Reed, the following have been noted on North American sites (FIG 161):

Ferryland, south St John's near the SE corner of Newfoundland (Harper 1960: 111) - described as being "stamped with a crown an 'ER' of 18th century British army issue"; probably a description of a London-style ER mark, for a crown above each initial was very common on London pipes from ca.1680 into the second half of the C18 (Atkinson and Oswald 1969: 185, 204; Atkinson 1965a: 254, 253 fig 6, 255 fig 7; Walker 1971c: 65 and *passim*. What the reference to British army issue refers to is unclear; presumably the crown was assumed to denote government issue, an interpretation certainly impossible whatever precisely the crowns did mean (cf Atkinson and Oswald *op. cit.* 204). Probably not a Bristol Randall product;

Louisbourg, Nova Scotia (I. Walker 1971c: 76, 80-1, 82 fig 21) - a fragment with enough of the bowl surviving to show ER facing the smoker but not enough to show whether there was a cartouche on side of bowl. In this case (the archaeological context was datable to ca.1716-1749 or 1750) the letters were of larger size than those used by the Tippets when marking their pipes RT; a bowl fragment from Louisbourg with the letters ER almost identical to those used by the Tippets and a cartouche indecipherable except for the last letter in the middle line which appears to be an O is probably an Edward Reed product (see Edward Reed above);

the William Bradford site, Plymouth, Massachusetts (M. Brown III 1972: 9) - the letters ER moulded on the side of a type 9c bowl;

an Indian cemetery at Kutztown, Pennsylvania, in the SE of the state west of Allentown (Pearce *in litt.* 24 December 1963; Witthoft *in litt.* 2 September 1964) - two beautiful examples of the Bristol export-type pipe each with ER facing the smoker and no other mark. Found in a child's burial with inter alia a silver spoon bearing Philadelphia crest and hallmarks datable to 1720-25; Witthoft feels the burial in question dates to the 1720s;

Jamestown, Virginia (J.P. Hudson *in litt.* 6 November 1967) - described as being on C17 pipes, Jamestown being a mostly C17 site, but no further details;

Berkeley county, north of Charleston, South Carolina, in collections of the Department of Archaeology and Anthropology, University of South Carolina, Columbia (seen by writer on card index while attending Eleventh Annual Conference on Historic Site Archaeology there, October 1970) - enough of a bowl fragment to show ER facing smoker; surface collection;

the Higgs site nr Wabasso, ca.50 miles south from Cape Kennedy or Canaveral on the east Florida coast (Higgs 1942: 38; H.G. Smith 1949: 18 and 1951: 9-10) - Higgs refers to "Many [pipes] which bear the trade mark 'R. Tippet' in cartouche or lettering 'R.T.' or 'E.R.'"; presumably early C18 ER-marked pipes similar to the Kutztown examples noted above

Port Royal, Jamaica (Omwake *in litt.* December 1966; Oswald 1968: 21 no 21, 59 and 61 nos 124-34 - no 131 has ER facing the smoker and T in a cartouche on the right side of bowl; no 21 has ER facing the smoker and IB in a cartouche on the side; 1969: 43 nos 92-5 - no 95 has (apparently) ER facing the smoker and ER in cartouche on right side of bowl)

There is also what appears to be a London type 9 bowl from excavations at the *Minute Man National Historical Park at Concord, Massachusetts*, which has the letters ER or possibly EP or EB raised from a depressed surround on the bowl facing the smoker (Mrs C.T. Snow *in litt.* 6 June 1967). If indeed ER, the nearest parallels would be two of the London examples attributed to the Edward Randall there (Atkinson and Oswald 1969: 187 fig 5,24-5) though it must be said the resemblance is not close in detail. There appear to be no initials on the sides of the heel.

Of particular interest are pipes with various combinations of maker's marks and/or names, for these suggest business partnerships and emphasize what a major and organized industry pipemaking must have been in Bristol in the early C18. The combined marks recorded so far are:
Robert Tippet II and Isaac Evans,
Robert Tippet II and Henry Hoar (the latter had been Robert Tippet II's apprentice).
Robert Tippet II or III and IS (later maker unidentified; a number of Bristol makers with these latter initials at this time are known),
Henry Edwards and ER,
Isaac Evans and ER,
ER and T (see above),
ER and IB (see above),
ER and FR (see above),
FR and IR (no definite identification for either of these two marks).

In North America finds of pipes with these double marks appears so far to be confined to Port Royal, with the single exception of a Robert Tippet/Isaac Evans pipe from Louisbourg (I. Walker 1971c: 79 fig 18 top, 76, 78) not recognised as such when that paper was written. The apparent restriction of such double-marked pipes may be because, of major sites covering the earlier C18, such as Williamsburg and Louisbourg, little or nothing of the pipe material has been published whereas Port Royal material has been with a wealth of drawings, though unfortunately drawings less accurate than should have been the case with such an opportunity available; it may, however, also be because the vast majority of pipes from Port Royal can be certainly or probably identified as Bristol made (cf Atkinson and Oswald 1969: 205; Oswald 1970b: 231) and thus represent a good cross-section of Bristol export products. In Bristol itself two of these combined marks are known, those of Robert Tippet II and Isaac Evans and of Robert Tippet II and Henry Hoar, both from the kiln site in Rosemary St which appears to have been one of the Robert Tippet factories.

As already noted, the apprentice and freedom roll entries, supported by evidence from the poll-books, indicate a sharp reduction in size of the Bristol pipemaking industry ca.1740. The above evidence on oversea trade supports this finding, for from a start before 1650 - the products of Richard Berryman and Edward Lewis I - the number of makers exporting and the geographical extent of their trade rapidly expands from the 1650s, with James Fox, the Philip Edwardses, Llewellin Evans, and the William Evanses the major suppliers, until the end of the century, when the Robert Tippets are establishing a market from Newfoundland to Jamaica and about a dozen other Bristol makers are participating in what is clearly a major Bristol export trade. However, of all those identified as exporting pipes only three - George Ebbery, William Nicholas, and George Viner - definitely took their freedom later than the first decade of the C18: in a few cases where it is not certain whether the products belong to a father or a son of the same name, or to more than one maker with the same name, there may be instances of products from one or two other makers of a later period, but in only one certain and a possible second case - Viner and possibly Thomas Grant - can makers be found who took their freedom later than the 1730s, and the overwhelming impression is that those who were exporting at the zenith of the Bristol clay pipe industry were those working in the decades immediately following 1700.

The archaeological contexts in which these pipes were found unfortunately do not, as a rule, add precision to the dating of the pipes. Rather, it is the opposite, that pipes of known or probable date give more precise dating for the site. The archaeologist thus has to always beware of going round in circles when considering dating evidence.

Occasionally, as with the Thomas Owen pipes from the Pen site near Syracuse, New York, an extremely interesting situation will arise. The Indian village known as the Pen site is supposed to be that destroyed by the Governor of New France, Frontenac, in 1696, and the undisturbed burial ground associated with the village to be that reflecting the destruction. Two TO-marked pipes, attributable to at least one of the Bristol Thomas Owens on the grounds of a number of identically-marked pipes having been found in Bristol, came from the burials, but Thomas Owen I, the earliest of the three makers of that name, did not take his freedom until 1698. However, he is referred to as a pipemaker 26 August 1696 when he obtained a licence to marry Mary Bull, and as he was apprenticed for seven years in February 1688/9 his apprenticeship should have terminated in February 1695/6, and if the rules about taking one's freedom before practicing a trade were slack (as it is known they were - see Section IV above) then Thomas Owen I could indeed have been making and exporting pipes from early 1696. If, therefore, the site is indeed correctly identified and the burials associated with the destruction of 1696 then archaeological evidence from New York state can be used to reinforce a hitherto rather dubious historical point in Bristol. Less dramatically, if the burials do have a date of 1696 then the presence of an RT-marked pipe with them reinforces the evidence from finds of J(o)ane Tippet pipes that the Robert Tippet family were exporting to North America before 1700.

Other sites which are useful are those with a short life well dated historically, for example Fort Gaspareaux, New Brunswick, occupied 1750-56 (see below) or the St Francis Xavier IV site at Caughnawaga near Montreal, Quebec province, occupied 1696-1719, provided such sites are reasonably free from later occupation or intrusion and have been adequately excavated. In the case of the St Francis Xavier IV site no excavation report has ever appeared, but the occupation dates agree with the Robert Tippet material found and particularly with the Edward Reed (A 1699, F 1706, fl 1723 and poss. 1735) bowl found there.

At Louisbourg, where the writer was able to study in detail pipes from certain areas where historical, archaeological, and artefact evidence all suggested well-dated contexts, one area yielded deposits one above the other datable to ca.1716 to 1749 or 1750, 1749 or 1750 to 1755, and 1755 to 1760; while another area had a deposit datable to 1720 to ca.1732 (I. Walker 1971c: passim). In the former area five of the six Robert Tippet pipes - including a J(o)ane Tippet example - came from the ca.1716 to 1749 or 1750 context, the single exception coming from the 1749 or 1750 to 1755 deposit. (The 1720 to ca.1732 deposit yielded three Robert Tippet pipes.) This might be taken as further proof that Bristol pipe exports were declining after the mid-C18, particularly as the later contexts at Louisbourg have a more predominantly English pipe content; however, the evidence is not so simple. The Onondaga and Oneida sites in New York state on which Robert Tippet pipes are common are dated from before 1700 to ca.1750 but the writer's excavations at the closely-dated site of Fort Gaspereaux, New Brunswick, 1750-56, turned up three Robert Tippet pipes while five were found at Fort Beauséjour, New Brunswick, founded in 1751 (four from 1751-55 French contexts) and the underwater work at Restigouche, Quebec, has so far yielded at least 15 from a wreck known to have been sunk in 1760; so it is clear that Robert Tippet pipes were still being exported as late as 1760, whatever the reason for the lack of documentary evidence on their makers after 1720 may be (for a discussion of the possibility that latterly Robert Tippet-marked pipes may have been produced by some other Bristol maker after the Robert Tippet family had either died out or stopped pipemaking see pp617-8 above).

All this agrees well enough with other pieces of documentary evidence. As noted on more than one occasion elsewhere, the pipemaker-turned-poet John Frederick Bryant jr (B London 1753, fl ca.1774 London, F Bristol 1780, D 1791) recalled that his father John Frederick Bryant sr (F 1747, fl 1750s London, returned to Bristol 1760, fl 1775 Bristol D ca.1777) inherited the family business in the early 1760s which was prosperous enough to employ ten journeypeople and keep himself, his wife, and his nine children in relative comfort before the loss of the oversea trade after the Stamp Act troubles of 1765-66 (cf MacInnes 1939: 266-74). Talking of his early days, the poet remembered how his leanings towards writing, drawing, and music could be indulged in at that time and that his father was a good enough violinist to be employed at the Assembly Room at times (he also played the trumpet) and that Bath and Bristol musicians sometimes held their rehearsals in their house.

However, the "confusion occasioned by the American stamp-act...put a great stop to trade to that country, and begun [sic] the ruin of his affairs"; as trade continued to decrease Bryant sr had to let his journeypeople go and continue his work as best as possible with his wife and the four of his children old enough to assist in the work (his post as city trumpeter at the city assizes and later £10 a year as Exchange Keeper, a post given him by the Corporation, enabled him to continue, though with difficulty) (Bryant 1787: vii-viii). Certainly Bryant sr had had an export trade in pipes, for his son records that after about a year's schooling he was "employed in packing up such of my father's goods as were to be sent abroad", though it was a job which apparently gave him considerable leisure from time to time - this would have been ca.1761, when Bryant jr would have been about eight years old (Bryant 1787: iii-iv).

As noted in Section VI above, Sketchley's Bristol directory for 1775, the year the Revolution started, lists 11 pipemakers (including a John Bryant at 61 Lewin's Mead, who is John Frederick Bryant sr, four of them living in then-fashionable Lewin's Mead. If, like Bryant, the others had also been employing up to ten journeypeople prior to the Stamp Act troubles, there could have been some 100 pipemaking employees in the city in the early 1760s. In fact, the 1754 polls note 48 pipemakers in the city (see Section

V above), to which one may add freemen who did not vote (though in this particular election probably most freemen did - see Section IV), possibly a few unfree journeymen, and perhaps some women-workers - Bryant jr referred to his father having "journeypeople", suggesting there may have been both journeymen and journeywomen. The total may have been ca.65-70. Assuming all businesses were as adversely hit as was Bryant's an appreciable number of people must have been put out of work and a large number of families affected. Certainly, when the American colonies retaliated against the Stamp Act with their embargo on British goods the metal industries of Birmingham and the Black Country were severely hit, it being claimed at the time that many merchants had most of their capital "locked up" in North America and that more than half the iron goods and three-quarters of the nails made went to the American trade, so that from "three to fifteen thousand manufacturers [workers] in these branches of trade will be entirely out of work in ten or fourteen days" (Chapman, Chambers, and Sharpe 1970: 135-6, quotation on p.135). That the American Revolution in 1775 put the finishing touches to the collapse of the Bristol pipe-industry is suggested by the drop in businesses listed in 1783 to 2 from the 11 recorded in 1775. While this total of two is probably an understatement (see Section VI above), other directory entries for the 1780s and 1790s suggest only five to seven firms, no doubt with much-reduced staff or none at all beyond the owner's family, struggled through this period. In the early 1780s Bryant jr went to London and set up in the stationery, book- and print-selling business partly because the pipe trade was still "greatly on the decline" (Bryant 1787: xxxiii).

At a national level there is evidence the English export of pipes to the American colonies largely or wholly ceased with the war, for at Williamsburg Dutch pipes occur in Revolutionary War contexts (I. Noël Hume in paper "James Geddy and Sons, Colonial Craftsmen: An Exercise in Historical Archaeology" given at the Spring 1968 Conference of the Society for Post-Medieval Archaeology, Cardiff), the only time such pipes do occur and no doubt obtained by the colonists through sympathetic French sources; while even more significantly, excavations at Fort Montgomery, New York state, on the Hudson near West Point and built in 1776 as one of the American Colonists' major defences on the strategic route up the Hudson to Canada, have produced a large number of Dutch clay pipes (Miss D. Moore, "Artifacts from Fort Montgomery", paper presented to the 1974 spring symposium of the Council for Northeast Historical Archaeology, Bear Mountain, New York state).

That Bristol trade in pipes to the American colonies survived the Stamp Act troubles and did continue until the Revolution, and that the Revolutionary War did ruin it for the time being is indicated by the port-books studied by Jackson and Price, which show 1,194 boxes of pipes shipped to the American colonies in 1773 - half the total exported that year - but only 254 boxes in 1774 and none for the years 1775-79[79] (Price in litt. 18 January 1974); and Latimer presents similar evidence, though apparently from a different source, noting that "the tobacco-pipe makers of Bristol - a numerous body - each sent 500 or 600 boxes of pipes yearly to the colonies, but the exports ceased after 1774" (1893: 414).[80] The George Ebbery pipe noted above from Fort Beauséjour, New Brunswick, where it occurred in a 1775-1833 context; the Anna Viner pipes noted below from Fort Lennox in Quebec province and Carleton Island now in northern New York state; the IE-marked pipe from Fort Coteau-du-Lac in Quebec province also noted below which is attributable to one of the Joseph Edwardses working in Bristol in the later C18 and earlier C19, the fort being founded in 1779; and probably the George Ebbery pipe noted above from an unknown context at Fort Michilimackinac, now in northern Michigan, and the William Nicholas pipe from an unknown context at Fort Beauséjour also noted above are the archaeological evidence that the shipment of Bristol pipes to Quebec City noted in 1790 (see below) is not an isolated one at this time. However, the port-books for the later C18 and early C19, according to Jackson and Price, do give only occasional references to shipments to Canada; Newfoundland, Halifax, Quebec City, and Montreal being among the places listed. (Canada, of course, remained loyal to Britain during the American Revolution, and Fort Michilimackinac remained British until 1781 and Carleton Island until 1812.)

The conclusion to be drawn from the available evidence, therefore, is that Bristol's oversea pipe trade, at least to North America, had its zenith in the early C18 and that thereafter it declined, as did the industry itself in Bristol, until the colonial trade was disrupted by the Stamp Act troubles and the American Revolution and the diminished but still apparently reasonably well-off Bristol industry fell into ruin. The overall decline of smoking in England throughout the C18 fits into the background of this pattern; as probably does the sudden rise from ca.1760, contrary to the general pattern, of the Liverpool pipe industry, occuring as it does just as Liverpool is supplanting Bristol as the nation's second port.

Why there is such a lack of material from specifically mid-C18 Bristol makers - only George Viner (A 1740 F 1747 fl 1757 D by 1775) and possibly Thomas Grant (fl 1740s D by 1751) and the unspecified Edwards who made the Port Royal pipe belong to this period - when it is clear Bristol continued to export pipes into the second half of the century is uncertain, but the most likely reason is that as the Bristol industry declined the lucrative oversea market was kept in the hands of the older and established businesses. The apparent retrenchment of the Bristol industry ca.1740 into a few businesses of this type on the evidence of the apprentice- and burgess-rolls and trade directories (Sections III, IV, and VI above) would agree with this suggestion. It is also possible that as the century progressed Bristol makers tended not to mark their products as they had earlier done so helpfully for future historians and archaeologists, though why they would cease such useful advertising is not obvious; the Grant and Viner specimens both had their maker's name in a cartouche, indicating this typical Bristol form of marking continued until at least the mid-C18, and William Nicholas and George Ebbery used cartouches with their initials as late as the 1770s. Perhaps more likely is simply the vagaries of chance, together with the fact that historical archaeology in the New World is still a new field and that much excavated material has never been published, or at least adequately published. As only a minute fraction of pipes exported is found on excavations it is reasonable that as the amount of Bristol material exported declines an even smaller amount of it is going to be found. Equally, one is hampered by the limitations of indentifiable pipe material found so far in Bristol: John Frederick Bryant sr and his ten journeypeople must have produced pipes in large quantities, and he did export pipes, but no finds are yet known which can be attributed to him, either in Bristol or abroad.

Evidence noted earlier in this chapter indicates the Bristol pipe industry was at a low ebb at the end of the C18. A handful of makers did, however, struggle on until better days arrived after ca.1805, four of them - Anna Viner, John Carey, Joseph Edwards jr, and Samuel Richards jr - advertising in 1799 that they produced pipes for the West Indian, American, Irish, and Spanish markets and would produce "likewise Tobacco Pipes made exactly to Patterns, for Africa or any other Market" (advertisement among pages of Bristol Pipemakers' Guild Book). One of them, Anna Viner (fl 1775-1805, widow of George Viner noted above), appears to have managed to retain some of her dead husband's oversea trade. Her pipes have a typical enough London-derived later-C18 bowl shape, the name Viner in capitals with a large V facing the smoker inside a dashed circle, and either the letters A and V on the left and right side of the heel or a heart in their place. As noted above when dealing with home trade, by the last quarter of the C18 the bowl shapes typical of Bristol products of the earlier C18 had been replaced and cartouche-style marking still used in mid-century by Grant and George Viner was almost dead. Anna Viner pipes have been found at Fort Lennox, ca.30 miles SW of Montreal, Quebec province (Barka 1970: no pagination, pl 30 middle row second from rt) and at Fort Carleton (1778-1813) on Carleton or Buck Island, New York state, in the St Lawrence where it exits from Lake Ontario, on the Canada-United States border (Hagerty in litt. 14 March, 12 April, and 2 May 1967) (FIG 160).

Two bowls from Fort Coteau-du-Lac, Quebec province, can be attributed to one or both of the Joseph Edwardses working in Bristol in the second half of the C18 and the earlier C19. Joseph sr became free in 1747 and was still alive in 1792, though probably dead by 1794; his son Joseph jr became free in 1774 and was still working in 1823. Fort Coteau-du-Lac was founded only in 1779. One of the bowls has the letters IE in a cartouche on its right side and a branch pattern on its left, the other bowl has the same letters on the right side but uncircled and with a flower below the letters. The reasons for attributing these pipes to the Joseph Edwardses is discussed in detail above (section on home trade).

Documentary sources also indicate the export trade was not entirely dead at this time, for as already noted, 2 boxes of pipes were shipped to Quebec City on 24 March 1790 on the Polly and 3 boxes went to Norway and 12 to Spain later the same year (Minchinton (ed) 1957: 56, 62, 61). Further, Jackson and Price's work on port-book evidence show a steady trade to Ireland of from ca.300 to 700 boxes a year between 1773 and 1800 and shipments over the same period of from ca.350 to 1,200 boxes annually to other destinations, mostly the West Indies.

Between 1810 and 1850 the Bristol pipe industry steadily expanded again, but as noted earlier (4: II), from the 1760s into at least the early C19 Liverpool appears to have taken over Bristol's trade and become a major supplier of pipes to North America, and before the middle of the C19 Glasgow had certainly taken over as the major supplier of this market (4: IV). The products of only one C19 Bristol firm, Ring (fl 1803-1883 or 1884) have been identified in North America, all probably in first-half-of-the-century contexts. A relative by marriage of the Rings, Arnee Frank (B 1766, D 1859), recalled in 1857 that Richard Frank Ring (fl 1813-1848 or 1849) "was for several years a Pipe Maker, largely for export, chiefly for the American market" (quoted in Pountney 1920: 161-2). However, up to the later 1840s other firms must have exported also, for the anonymous correspondent to the Examiner (letter of 24 August 1850) indicated there had formerly been a large export trade to Canada and the United States by St Jude's makers (Ring worked at Temple Back, well away from St Jude's) but that "within the last three or four years, it has dwindled to little better than nothing". The firm of Ring and Cookworthy (fl 1802-17), also on Temple Backs, announcing their establishment in 1802, solicited orders from "Merchants, Captains and Ships, and Dealers..." (advertisement quoted in Pountney 1920: 259), suggesting they had an eye on orders for shipment abroad; Jackson and Price's examination of the port-books indicate that generally pipes were exported through middlemen but that a few makers, particularly the Joseph Edwardses, William Okely, the Samuel Richardses, John Ring and Co., and R.F. Ring and Co. did export their own products direct (R. Price in litt. 18 January 1974). In the period of the port-books covered by Jackson and Price, only one shipment from these firms to Canada is recorded - in 1810 when John Ring and Co sent 21 boxes to Quebec City and Montreal - but several such shipments to the United States are noted in the early C19: 89 boxes from John Ring and Co. in 1804; 20 boxes from the same firm in 1809; 200 boxes - to Philadelphia - from the same firm in 1810; 240 from R.F. Ring and Co. in 1815; 1,075 from W. Okely and Co. in 1817; 3,750 in 1818 from the same firm; and 215 from R.F. Ring and Co. also in 1818. In 1818, in fact, Okely and Ring between them exported most of the Bristol pipes which went to North America that year. In another entry, Joseph Edwards jr had shipped 28 March 1805 to Boston on the Venus 200 "bls" (Jackson and Price suggest either barrels or balls, but it seems possible to this writer it is a mistake for lbs) of tobacco-pipe clay.

To judge by the paucity of identified C19 Bristol material found so far in North America, it certainly seems a possibility that Bristol makers were tending not to mark their pipes with their name and place of work. None of the above-mentioned firms worked in St Jude's - indeed, by 1818, when Jackson and Price's work on the port-books ends, St Jude's was only just becoming the Bristol pipemaking ghetto - so the reference in the Examiner clearly indicates that products of other, later, firms should turn up on North American sites, but so far no such identifiably-marked pipes have been recorded. The Examiner reference also suggests it was the growth of the Glasgow industry in the 1840s which finally finished off Bristol's North American trade.

The sites producing Ring pipes are as follows (FIG 162):

Quebec

Chicoutimi trade post, 110 miles north of Quebec City (Simard in litt. 5 May 1972);

Fort Coteau-du-Lac, on the St Lawrence river 10 miles from the Ontario border (ex info. Miss E.A. Wylie);

Fort Témiscamingue, nr Ville Marie on the upper Ottawa river ca.45 miles north of Témiscaming (material in collections of the Research Division, National Historic Parks and Sites Branch, Ottawa);

Ontario

the York I site, nr York, on the Grand river in the Niagara peninsula (T. Kenyon 1971);

the Hunter site, (Armour's Point), nr Dunnville, on the Grand river in the Niagara peninsula (T. Kenyon 1971);

New York

Brodock Corners, nr Rome (Hagerty *in litt.* 4 February 1969);

Wyoming

Portuguese Houses, a trading post founded 1838 nr Kaycee in north-central Wyoming, between Casper and Buffalo (Wyoming State Archives and Historical Department, Cheyenne, *in litt.* 13 June 1968; R.L. Wilson 1971: 34, 70 fig 23, B-C and D).

In addition, there is a possible Ring bowl with R/R on the spur and leaf decoration along the mould lines on the front and back of the bowl, a type known in England from the West Country and the South-West (see above, home trade), from Port Royal, Jamaica (Oswald 1969: 45 no 96).

The Ring material from each site except Fort Témiscamingue and the Hunter site includes the firm's "Ohio" pipes, with RING BRISTOL lengthwise on one side of the stm and OHIO on the other. (The Fort Témiscamingue fragment was of a stem with [R]ING&C[O] impressed round it in small
[B]RISTO[L]
sharp letters; that from the Hunter site was a plain stem marked "Ring" and "Bristol" lengthwise in opposite sides.) What precisely an Ohio pipe was is uncertain, for there were certainly several varieties even among Ring's products. Stem fragments of Ring's Ohio pipes normally have the wording in capitals on a plain part of the bowl (see fig *b* Ring entry, Appendix IX), but fragments from the York I site appear to have the place-name omitted, the other two words with capital initial letters and the rest lower case, and Ohio mis-spelt as "Oiho" (fig *e*); and an example with the orthodox format and lettering from the Chicoutimi site has a line of small bird's-feet like marks above and below the lettering (fig *c*) (unfortunatly the piece is too fragmentary to show whether this variant also had the spiral decoration). There is a spiral-ridged stem fragment from Fort Coteau-du-Lac, Quebec province (see below), attached to an entire heeled bowl, which could well be an Ohio pipe, and the bowl is a standard enough fluted C19 type (fig *g*); however, the York I site in the Niagara peninsula produced a marked stem fragment but with a more elaborate spiral decoration and a plain, heeled, bowl (fig *f*; T. Kenyon *in litt.* 3 October 1972) and fragments with the same elaborate spiral decoration occur at the nearby Johnson and Middleport III sites (see below) and at the Chicoutimi site where what survived of the bowl indicated at least its lower part was undecorated. The Chicoutimi site also produced an Ohio-marked Ring stem fragment with the bowl heel attached and marked T/D (fig *d*), emphasizing there must have been varieties of bowls for Ohio pipes; and it is clear from the above evidence that Ring's themselves produced several varieties. A clear green glaze was noted on the mouthpiece of one Chicoutimi Ring Ohio stem.

Ohio pipes appear to have been popular throughout last century, for not only is Ring recorded in the Bristol trade directories as an "Ohio tobacco-pipe manufacturer" during the period 1816-48 but a 1900 pricelist of pipes made in Scotland notes (Anonymous 1900: 52) the Glasgow firm of Waldie listing an Ohio pipe among their products. As this pricelist is unillustrated it is unknown how closely this model would have resembled Ring's Ohio pipes; it is thus not possible to say categorically that stem fragments from nine other North American sites are Ring's products. They certainly appear to be extremely similar to Ring's Ohio pipes and the variations noted among these pipes from the sites listed above; but Jones of Liverpool pipes from Old Sacramento City, California, in an 1846-52 context also have a spiral ridging ended by double vertical lines to one side of the maker's name (Humphrey 1969: 17, 16 fig 8), though they do not appear to be marked Ohio. The nine other sites are:

New Brunswick

Fort Beauséjour (MacLean 1971: 41, 80 fig 31f) - a stem fragment with the spiral ridging typical of that occuring on Ring's Ohio pipes but with too little of the stem for any inscription to remain;

Quebec

Fort Coteau-du-Lac (material in collections of the Research Division, National Historic Parks and Sites Branch, Ottawa) - stem fragment with typical spiral ridging attached to heeled bowl decorated with fluting;

Ontario

Fort Wellington, nr Prescott on the St Lawrence river (Wylie 1971: 78) - typical spiral ridging, one piece attached to heel and bowl fragment, the latter being apparently fluted;

the Johnson site, nr Middleport, on the Grand river in the Niagara peninsula (T. Kenyon *in litt.* 18 July 1972) - typical spiral ridging;

the Middleport III site, at Middleport, on the Grand river in the Niagara peninsula (T. Kenyon *loc. cit.*) - typical spiral ridging;

Fort George, Niagara-on-the-Lake, where the Niagara River enters Lake Ontario, opposite the United States border (material in National Historic Sites Service collections) - typical spiral ridging;

Ermatinger House, Sault Ste. Marie, northern Ontario (Reid *in litt.* 14 October 1974) - fluted bowl identical to that from Fort Coteau-du-Lac (above) with enough stem to show the beginning of typical spiral ridging;

Massachusetts

Black Lucy's Garden, Andover, north of Boston (photograph in writer's files; excavation report Bullen and Bullen 1945 but stem not referred to there) - typical spiral ridging, with the grooves having small dots as with the definite Ring Ohio pipe from the York I site in Ontario (see above; also fig f);

Michigan

Fort Mackinac, Mackinac Island, near Mackinaw City, C19 successor to Fort Michilimackinac (Petersen 1963a: 8, illus. on p.7) - another typical Ring Ohio stem with OHIO on it; description, however, does not note any other wording such as name or place of manufacture, though it could have been lost by damage.

Additionally, there is a stem-fragment with spiral decoration from Fort Ticonderoga, New York state (Gifford 1940: 130, 123 pl IV fig 36), but to judge from its description as "a tapered pipe stem which has a broad raised band at the large end and a raised serpentine coil encircling the stem and extending from the raised band to the small end", as well as from the drawing, this is probably not a Ring Ohio pipe.

Among the Ring material from Fort Coteau-du-Lac are stem fragments with the same idea of decoration as the Ohio fragments but with the ribbing running parallel to the line of the stem. These are marked "Ring" on one side and "Bristol" on the other, both words having the initial letter upper case and the remainder lower case. No examples with bowl fragments attached are known. A similarly-inscribed fragment, but with no ribbing at all, came from the Hunter site.

What may possibly be a fragment of a Ring pipe in this style comes from the site of Sutter's Sawmill, where the California gold rush began in 1849, near Coloma 20 miles ENE of Sacramento (Fenenga 1947: pl 1,7). The fragment has frustratingly broken in the middle of the ribbed part so that any name of the stem between this part and the mouthpiece has gone; the opposite end of the fragment has the stem beginning to curve up, presumably towards the bowl, and decorated with what appear to be small overlaping shell motifs though the text (p.162) calls it a feather motif. Forma (1972: 51) notes a stem-fragment from the Hudson's Bay occupaion (1821-1904) of the Michipicoten Trading Post site at Michipicoten, northern Ontario, on the NE shore of Lake Superior, with "longitudinal striations [sic] similar to the 'Bristol Ring' style", but unfortunately the fragment is not illustrated. As with the "barber pole" spiral ridging of the Ohio pipes, however, there is no means of knowing how commonly this style was used by makers other than Ring, and no stems with the ridging parallel to the stem are known from Bristol (one, as noted when discussing home trade, is known at Tewkesbury Museum but it also is too fragmentary to show any maker's name which might once have marked the pipe).[81]

A particular feature of interest with Ring pipes is their occurence either certainly or probably at no fewer than five sites in the Niagara peninsula, four of them along the Grand river. The mechanics of distribution of imported pipes is still largely unknown, but the possibility there was a local agent in the area - perhaps at Niagara-on-the-Lake, which was the first capital of Upper Canada (now Ontario) 1791-96, a strategic military site until after the War of 1812, and then a major commercial centre for the Niagara peninsula for the first half of the C19 (Flemming 1971: *passim*) - who at one time had a contract with the Ring firm seems quite likely. As noted in 2:VII, a White of Glasgow pipe with BUSH & C^{o} AGENT moulded on the opposite side of the stem from the maker's name and place of work and a stem-fragment with McDougall of Glasgow's name and place of work on one side and -TRAND.AGENT on the other have come from two Canadian sites, indicating there were such agents, presumably on the New World side of the Atlantic, and that it was even considered worth the expense of mould-imparting their names on pipes. Suggestively, the Bush and Co.-marked White pipe in fact came from Niagara-on-the-Lake, having been found during excavations at Fort George there. Distribution-maps of pipe-finds may add to our knowledge of trade within C19 North America; the distribution of Ford of Stepney pipes coincides consistently with that of Hudson's Bay Company trading posts because the company obtained its pipes from Ford for much of the C19, and Ford pipes do not appear to have reached

North America other than through Hudson's Bay outlets, though probable examples of the firm's pipes are also known from as far away as Ascension Island and Australia (see 4: VI). The Niagara peninsula Ring distribution, indeed, may be compared to the concentration of possible Ring pipes in the Brixham-Dartmouth-Totnes area of South Devon (see preceding section).

As noted in Section VI above, the Bristol pipe industry collapsed in the 1860s and only three firms struggled into the C20. There is no archaeological evidence to indicate that any Bristol firm other than Ring (which closed in either 1883 or 1884) exported to North American, but as indicated above there had been an appreciable trade there until the later 1840s on the evidence of Arnee Frank in 1857 and the correspondent to the Examiner in 1850. However, the amount of Glasgow material recovered from excavations of C19 North American sites clearly indicates the Glasgow industry had an overwhelming proportion of the British clay pipe export market there by mid-century. In view of the continued export of Bristol pipes to South Africa up to ca.1900 noted earlier, however, a small amount of Bristol trade in pipes to North America may have persisted until the end of the C19; confirmation of this may have to await detailed study of Bristol's port books. After dropping the phrase "Ohio tobacco-pipe manufacturers" from their trade-directory entry in 1849 Ring's called themselves "export tobacco-pipe manufacturers" until 1879, suggesting the firm did continue to export their products into the second half of the century.

The only other Bristol pipe-manufacturer actually listed as producing for export is William White. Matthews's directories list him only for the period 1847-51 producing a variety of pottery as well as pipes at Redcross St and make no reference to his exporting but Slater's (late Pigot's) Directory for 1852-53, while inaccurate in recording him this late - Matthews has a successor at his address in 1852 - does refer to him producing "for exportation". No White of Bristol pipes have ever been seen by this writer nor do they appear to have been recorded in the literature, but as White of Glasgow and White of Edinburgh products have appeared abroad care should be taken to check the placename appearing on the side of the stem opposite an inscription "White" or "W. White" and not to assume it must be either Glasgow- or Edinburgh-made.

This William White may have been a member of a Bristol family of potters and pipemakers various members of whom made pipes in Bristol up to 1862 along with a range of pottery and some of whom emigrated to Saint John, New Brunswick, in the early 1860s to establish a firm which lasted until the end of the 1880s. A reference to this latter firm may be included here as a closing tribute to Bristol's pipe-trade with North America. The firm, Joseph White and Sons of the Courtnay Bay Pottery, Crouchville, Saint John, were certainly producing pipes in the 1880s, their products being described in 1880 by a party of businessmen from Manitoba (at least as recorded by an enthusiastic local newspaper reporter) as being better than those imported into Manitoba from Scotland - praise indeed, seeing that Scottish, or specifically Glasgow, pipes had established a market all over North America and indeed in many other parts of the world, in the C19 (see 4: IV). A grandson of the Joseph White of this firm, James W. Foley, was in business as a potter in Saint John with the firm Poole and Foley from ca.1880 to ca.1900 and later in business by himself with a firm which still exists, though now in Quebec province: in 1883 Poole and Foley were producing among other ceramic items tobacco-pipes of a "superior quality". (For a detailed description of the White family's businesses see 6: VI, see also Appendix IX under entries for White.)[82]

(c) PATTERNS OF RISE AND DECLINE

The pattern of trade in Bristol-made clay pipes and its relationship to the fluctuations of the Bristol pipe-manufacturing industry seems fairly clear from a consideration of the home and oversea trade outlined above.

The manufacture of clay pipes in Bristol was already established by 1619; and the first reference to a Bristol pipemaker, which occurs in that year, is to his taking an apprentice, suggesting business was adequate enough to need an assistant. This first pipemaker is Richard Berryman, perhaps a Londoner, who appears in the guild charter of incorporation in 1652 and was thus making pipes for over 30 years in the city. The widespread distribution of his products - Somerset, Wiltshire, Gloucestershire, Herefordshire, Monmouthshire, Glamorgan and as far away as Plymouth in Devon suggest he was a major supplier for a wide region. A younger contemporary, Edward Lewis, a native Bristolian, was taking apprentices by 1631; and he too built up a widespread trade in the second quarter of the century, his pipes occuring in Somerset, Wiltshire, Gloucestershire, Worcestershire, and Glamorgan.

Writing in 1960, Oswald (1960a: 41-5, cf figs 15 and 16) noted the rarity of pipemakers recorded outside London and Bristol before the second half of the C17, and while the subsequent decade of research has made certain modifications to that picture (Oswald 1970c: 226-8) it is still the case that outside London only Bristol before mid-century has any claim to having a pipemaking industry. As noted in Section I above, the Bristol industry probably existed in a semi-clandestine state at least until the end of the 1630s because of the Westminster guild's theoretical monopoly; but in view of Bristol's being the second city in the kingdom it is not surprising that it did have an industry, albeit unofficial, rather than merely one or two individuals. Oswald's 1960 map therefore, while underestimating both the number of pipemakers working in London in the first half of the C17 and the number of individuals working elsewhere in the country, is not substantially altered in its overall impression that pipemaking before ca.1650 had not yet become a local craft to be found in most places of consequence.

From this it seems safe to deduce that Bristol was the logical centre to supply pipes to the West Country, the lower Severn basin, South Wales, and into the South-West. This is probably the explanation for Berryman and Lewis pipes being traded over such a wide area, though as they were not the only Bristol makers of this period one may also suppose they had the biggest businesses and perhaps the best products.

This interpretation receives some support from Oswald's distribution-map of pipemakers of the second half of the century (1960a: 43 fig 16). This shows a marked concentration of pipemakers in Wiltshire - perhaps because tobacco was being grown here at this time (1: V) - and lesser concentrations in south Somerset and South Devon, indicating the spread of pipemaking as a country craft. When one examines the distribution within England of pipes made by Bristol makers active in the third quarter of the century, the Philip Edwardses and Richard Nunney, one finds that apart from three examples from north Somerset the distribution of these makers' products, while otherwise almost as widespread as those of Berriman and Lewis, does not reach into these areas. Indeed, as already noted, there may have been Wiltshire influence, in the form of John and Flower Hunt, coming into Bristol. The Edwardses pipes occur in (apart from Somerset), Gloucestershire, Herefordshire, Shropshire, Monmouthshire (particularly), and Glamorgan; those of Nunney, again excluding Somerset, occur in Gloucestershire, Monmouthshire, and Glamorgan as well as far outside the normal area, in London and Nottinghamshire. It is during this period - between 1657 and 1664 - that Bristol pipemaker Thomas Cullimore apparently moved to Gloucester; and the three shipments of pipes - two each of "twoe boxes" and one of "one boxe" - from Bristol to Caerleon recorded in 1656 in the Caerleon port-books (Talbot 1969: 131) offer only the barest glimpse of the Bristol trade to South Wales. All this suggests trade up the Severn and its tributaries and to South Wales in the third quarter of the century was still continuing as in the previous quarter-century while the markets east and south of Bristol at least had been effectively closed because of the rise of local industries. Before the end of the C17, as will be noted, the Broseley and Herefordshire industries were to largely take over in the Severn basin and Welsh Marches.

Of particular interest are the Bristol pipes from Raglan Castle in Monmouthshire, for they can with some plausibility be related to known historical events. During the Civil Wars Raglan Castle was a major Royalist centre in the west, and its siege and eventual surrender in the summer of 1646 marked the effective end of the First Civil War. Following the siege, the castle was allowed to be plundered, and lead and timber from the site were taken the seven miles to Monmouth where they were auctioned and much brought by Bristolians who shipped it on rafts down the Wye and across the Severn to Bristol, where it was used in the rebuilding of some two dozen houses on Bristol Bridge which had been destroyed by fire "some months previously", on 17 February 1646/7 (J. Evans 1824: 209, Latimer 1900: 216-7). It is tempting to suggest that the Bristol pipes found at Raglan Castle - three the products of Richard Berryman, three those of Philip Edwards - are associated if not with this specific event at least with other subsequent looting (cf A.J. Taylor 1950: 21-2, 1970 impression). One cautiously adds this last, partly because while Berryman's dates fit, Philip Edwards sr frustratingly did not become free until March 1649/50 which on the face of things should date his pipes to no earlier than then, almost three years later than the rebuilding on Bristol Bridge. However, even if Edwards was not making pipes before taking his freedom, one may guess that such a convenient source of building material was a long-standing attraction to enterprising individuals from a major centre such as Bristol.

During the second half of the C17 Bristol's pipe-industry changed from a predominantly home-oriented business to a major oversea speciality-trade. This may have been encouraged as policy following the setting up of the Bristol pipemakers' guild, which as noted in Section I above appears to have been the product of a conscious desire on the part of the City Fathers to foster the industry presumably for the city's economic benefit, but with the rising prosperity of Bristol as a port serving the New World the advantages of establishing a corner in this trade with specialist products must have seemed obvious enough to more than one pipemaker. Further, as pipemaking spread at home into smaller centres and rural areas it must have become progressively less rewarding to trade into the Bristol hinterland when there was a major captive market across the Atlantic. The Philip Edwardses - probably mainly Philip sr - and Richard Nunney are the last Bristol pipemakers whose products occur in significant numbers in England and Wales, and both (or all three) were also exporting to North America; the virtual lack of products of Llewellin Evans and the two William Evanses in England and Wales and the widespread finding of their products in the New World strongly suggests that by the time these younger contemporaries of the Edwardses and Nunney were in business - from, say, the 1660s and 1670s onwards - supplying the oversea market was fully occupying Bristol pipemakers.

An intriguing possibility, and one which might find confirmation in a study of the port-books, is that there were Bristol agents in colonial ports or in France (Robert Tippet pipes are relatively frequent in French contexts in North America) for some of the pipemakers during the period of greatest Bristol export of pipes to that continent. There is no actual evidence to suggest there were, but such arrangements were not unknown: one Staffordshire pottery firm had agents in 1743 at Bridgwater, Falmouth, Plymouth, and Exeter while another had one in Amsterdam in the 1740s to 1760s and regularly shipped him crates of pottery every two months or so, sometimes over 100 at a time (Rowlands 1968: 52; Mallet 1966: 126-7; Weatherill 1971: 88); there were a number of Bideford agents in C17 Virginia connected with the tobacco-trade who were no doubt involved in the reciprocal trade in North Devon earthenwares which appear in the C17 and C18 in the American tobacco colonies (C.M. Watkins 1960: 23 and passim; cf p.870 above); and ca.1783 the brother of an Andenne faience-maker lived at Gouda and acted as agent there for Andenne clay (3: IV). Further, one may suspect that some of the parents of boys apprenticed in Bristol in the C16 and C17 and listed as from Ireland, France, and Jamaica (Sub-section (a) above) were sons of Bristolians living abroad as agents either in their own interests or for someone else. In any event, the possibility seems worth investigating, both from the Bristol and North American ends.

That Bristol gave up her home market to concentrate on the oversea trade is also suggested by the emergence of other home pipe-industries elsewhere to successfully establish themselves as serving an area at least as large as that which Bristol had earlier in the century. The Herefordshire industry, though it has yet to receive any systematic study (cf A. Watkins 1935), was producing a characteristic bowl form with some similarities to Broseley pipes from farther north by the second half of the C17; and going no farther than the counties covered by this writer as being likely to have Bristol material, Herefordshire or Herefordshire-style pipes were noted in collections as far apart as Nuneaton and St Fagans and covering the counties of Glamorgan, Monmouthshire, Gloucestershire, Herefordshire, Worcestershire, and Warwickshire. Their distribution to the north and west remains unknown, but examples occur at Montgomery Castle in Montgomeryshire, central Wales (J.M. Lewis 1968: 148, fig 7,4-5 and 8).[83]

Another example of specialization in home trade is the pipe-industry of Broseley in Shropshire. D.R. Atkinson's major study of this industry is expected to be published shortly, but evidence available at present suggests that from a start in the second quarter of the C17 with a London-style bowl - indeed, similar to that used by Berryman in Bristol at this time - the Broseley industry grew rapidly, producing characteristic Broseley bowl-shapes from ca.1660 onwards (for Broseley history see meanwhile Oswald and James 1955a: 187, 188; for revised dating of Broseley bowl-styles see Oswald 1970c: pl 201). With the growing reputation of the Broseley industry for high-quality products its characteristic later C17 bowl-forms appear to have been widely copied in central England. Atkinson (in litt. 24 April 1972) believes actual Broseley-made pipes tended not to be sold very far afield of the immediate vicinity of Broseley but that Broseley-style pipes, on the other hand, had a widespread distribution.

Certainly in the area covered by this writer on museum visits, Broseley and Broseley-style pipes covering the second half of the C17 and the early C18 were widespread. They were observed as far south as Weston-super-Mare in Somerset and from the counties of Pembrokeshire, Carmarthenshire, Glamorgan, Monmouthshire, Gloucestershire (including Bristol - Thomas Hartshorne example Pritchard 1901: 280; Richard Harper example Reed 1961: 282, 275 fig 12,14; Morris Shaw example on display in City Museum 1969), Herefordshire, Worcestershire, Warwickshire, and possibly (E. Watkins 1966: 219, fig 1,9) Dorset; while material at Birmingham included examples from Oxfordshire (cf Oswald 1970b: 244 and pl 211 btm left), Leicestershire, and the West Riding of Yorkshire. Oswald's distribution map of his Broseley type 5, a form datable to ca.1680-1720, and other references to Broseley and Broseley-style pipes both of that period and earlier, indicate a yet wider distribution, extending into south Somerset and south Wiltshire (cf two examples from Marlborough, Atkinson in litt. 24 April 1972), Derbyshire, Staffordshire (cf Kelly 1969: 20; Celoria and Kelly 1973: 63 figs 61-2, 40), Cheshire (cf G.C. Spence 1942: 50, 52 pl V,3, 54, 55), and central Wales (cf J.M. Lewis 1968: 147-8, fig 7 passim), and as far away as London (cf Sanford 1968: 9; Atkinson in litt. 27 June 1974) and Cambridgeshire (Oswald 1960a: 47 fig 20, 48). Broseley-style pipes are also known from North Wales (Butler 1964: 128, fig 9,2) and as far afield as Essex (Gant 1959c; 1967a) and the North-East (Parsons 1964: 240). However much of this spread may be of Broseley bowl-styles rather than actual Broseley products it is still clear Broseley pipes had become famous enough to enjoy a wide reputation and much immitation.

On the other hand, the scarcity of Broseley or Broseley-style material from North America suggests that market was not sought. Broseley or Broseley-style pipes did reach the New World (Oswald 1960a: 48), but only scattered finds are known: from Massachusetts (Deetz 1960a: 8th page; Snow in litt. 6 June 1967); Virginia (J.N. Pearce in litt. 24 December 1963 and Pawson 1969: 123, 122 fig 2,14); North Carolina (Mrs H. Camp in litt. 19 December 1972); and Jamaica (Omwake in litt. December 1966 and Oswald 1968: 25 no 28, 81 no 193); and possible examples from Maine (heel fragment at Pemaquid seen by writer November 1972) and Nova Scotia (I. Walker 1971c: 116

fig 47 rt, 115-6). This reinforces evidence above that the Broseley industry and its immitators concentrated on the home market.

As is to be expected with Broseley being only a mile from the Severn at Ironbridge, the Severn basin has a particularly heavy concentration of Broseley and Broseley-style material. The collections at Tewkesbury and Stratford-on-Avon, for example, are almost entirely of this material, and sizable quantities were noted at Worcester, Cheltenham, Gloucester, Stroud, Hereford, and Abergavenny. No work has yet been done on pipemaking at Gloucester, but material at Stroud suggests Broseley makers migrated down the Severn and established themselves there. Broseley makers used a distinctive mark comprising their name in two or three lines of text raised from a depressed background and separated by a raised line in a rectangle or square either on the characteristically large heart-shaped heel or on the stem (e.g. R. Thursfield 1863: pls VIII-X; T.H. Thursfield 1907: pls 1-6; Oswald and James 1955b: figs 1-2); and one such-styled mark at Stroud (from the town itself) reads SACTO/GLOSTR/FROM/BROSL, indicating a maker, whose name is unfortunately not clear, had come "to Gloucester from Broseley".[84]

Another Broseley-style mark on Gloucester-made pipes is RICH/MATH/EWS/GLOS. Rather surprisingly, none were noted in the Gloucester collections, but even excluding fragments too small to show the entire inscription (and which therefore might possibly not have had the line indicating "Gloucester") at least seven definite examples are at Stroud (from Slad, Frocester, Selsley, and Stanley Downton, and three from Leonard Stanley). Oswald (in litt. 2 April 1974) notes a stem marked RICH/MAT/HEW/S from Nailsworth, only four miles south of Stroud, the mark in this case being an apparent combination of Broseley and Wiltshire-Hampshire traits, with the letters raised but with a sub-circular surround and with no raised lines separating the lines of letters (the Wiltshire-Hampshire stem-mark has the maker's name impressed in lines within a circle, see p. 614 above). A Nicholas Matthews is noted as a "pipemaker deceased" of Gloucester in April 1719 when a son Richard is apprenticed to a Bristol glassmaker (perversely, the same Nicholas is referred to, again as a pipemaker deceased, as of Bristol in April 1716 when another son, John, was apprenticed to the same glassmaker; but there is no other reference to a Nicholas Matthews pipemaker in Bristol known, and the Gloucester reference is almost certainly correct).[85] This indicates a Matthews pipemaker was in business in Gloucester by ca.1700, though he need not, of course, necessarily have come from Broseley; no pipemakers of that name are at present known from Broseley. According to Gloucester Public Libraries, to whom I am grateful for this information, none of their available C19 sources lists a Mat(t)hews pipemaker in Gloucester during that period.

Unfortuntely there are as yet no dates for Richard Mathews of Gloucester, but Alan Peacey, who is at present studying pipes from Gloucestershire and to whom I am grateful for this information, has noted that Bristol material is replaced by Wiltshire material and this in turn by Broseley; and as Wiltshire and Broseley pipes in Gloucestershire collections are appearing by 1700 one might expect Broseley makers to be following their products in the early C18.

Other examples of the spread of this Broseley-style marking are stem-marks used by two Bristol makers, George Ebbery (F 1721, fl 1781) and either George Viner (F 1747, D ca.1775) or possibly his widow Anna (fl 1775-1805). Two stem-fragments at Bristol read EB/BERY/BRIS/T[OL] and one from Louisbourg reads VI/NER/BRIS/TOL in typical Broseley fashion. When Ebbery became free it was noted he had been apprenticed to William Taylor, but unfortunately his apprenticeship entry has not been found, so that it is not known whence he came, though it is overwhelmingly probable he was a Bristolian.[86] George Viner was the son of a Bristol joiner and originally apprenticed to Charles Hickes, but subsequently he became an apprentice of George Ebbery, from whom he no doubt borrowed this form of marking. Unfortunately too, Ebbery's products covered on historical grounds much of the C18 - at least 60 years - and this is confirmed by their typological variety (Appendix IX) and a well-dated late find from North America (preceding sub-section). As no bowls have yet been found with these Broseley-style marked Ebbery stems no precision can be given to the dating for this marking, but as this form of marking occurs on no known products of the very numerous first-third-of-the-C18-century Bristol makers whose pipes are well known, and as the Viners cannot have been using this form of marking prior to mid-century, it seems more likely it is a mid- and later-C18 introduction, though Ebbery could conceivably have been using it from as early as the 1720s; bowls with GE raised in a cartouche on the right side and the same letters impressed facing the smoker a la Robert Tippet are typical enough Bristol bowls of the earlier C18, indicating that in these aspects at least Ebbery followed Bristol markings of that period.

The same Broseley-style marking occurs on other pipes with West Country type 9 bowls. Benjamin Abbott, whom Oswald notes (1960a: 55) working at Ramsden in western Oxfordshire in 1758, used a typical Broseley stem-mark reading BEN/ABB/OTT, and examples are known from Oxford (Oswald 1970b: pl 213, p.244) and at Filkins. The bowl on the Filkins pipe, however (the Oxford example is only a stem fragment), is an entirely typical earlier C18 West Country Oswald type 9 bowl, suggesting that whatever Broseley traits Abbott adopted, or conceivably brought, he used a more local bowl form. Other typical bowls of this form, one from Hailes Abbey near Winchcombe in Gloucestershire (Oswald _in litt._ 28 May 1969) and another from Coventry, have the same Broseley-style stem-markings reading IOHN/BOW/LDS, and two similarly-marked Bowlds stems also come from Coventry (Coventry material in the museum there). Bowlds is otherwise unknown, but the occurrence of his products in the middle Severn basin suggests he may have been a maker in that area combining the orthodox West Country bowl-shape of this period with the Broseley-style marking known to have spread down the Severn to Gloucester and Bristol (see above). (A.J. Bold is recorded A 1723 at Maidstone (Oswald _in litt._ 16 June 1972), a date which would fit the typological dating of the bowls, but one would have to assume he had crossed the country on finishing his apprenticeship and there adopted local pipe forms.)

When these distributions of Herefordshire and Broseley pipes are compared to the virtual absence of Bristol material beyond that city from the last quarter of the C17 onwards into the C18, it is clear that Bristol makers were no longer interested in home markets. In all cases where there is both Bristol and Brosley or Herefordshire material in collections - Monmouthshire, Herefordshire, Gloucestershire, and Worcestershire - the

Bristol material is confined to the middle decades of the C17 and the other succeeds it, suggesting the latter was expanding into areas which had hitherto looked towards Bristol for their pipes. As this is the very period Bristol's pipe trade abroad was rapidly expanding - witness the frequency with which pipes made by the Philip Edwardses, Llewellin Evans, and the William Evanses occur in North America - it is clear that Bristol pipemakers had lost their interest in holding their home markets and were turning their energies towards presumably more lucrative oversea markets.

The first three decades of the C18 see the zenith of Bristol's trade in clay pipes with North America. The organized nature of the industry at this time is hinted at by pipes bearing double makers' marks - Robert Tippet II and Isaac Evans, Robert Tippet II and Henry Hoar, Isaac Evans and ER, among others (see Sub-section (b) above) - which suggest partnerships or contracting out of work by the major makers. Bristol pipes, dominated by the products of the Robert Tippet family, occur everywhere there is white settlement in eastern North America in the earlier C18, from the St Lawrence to the Gulf of Mexico, from Newfoundland to Florida, and as far west as Mississippi and Michigan (FIG 151) and indeed, to judge by the frequency with which they have been found on native sites, in areas beyond white settlement. Bristol pipes occur frequently also at the Port Royal, Jamaica, which was a British possession from 1655.

The reason for the sharp decline ca.1740 both in pipemaker-apprentices being taken and in pipemakers becoming freemen is uncertain. As a decline in the number of apprentices taken would not normally show in the burgess-roll entries until seven or more years later - apprenticeships being for that length - the coincidence here of the two dates suggests some major external event had caused a sharp drop in the number of pipemakers working, and presumably also in the prosperity of the trade. North American archaeological evidence, as noted in the preceding paragraph, indicates the three decades preceding 1740 appear to have been the heyday of Bristol's export trade and presumably of the pipemaking industry itself, but Bryant's reminiscences would indicate the industry, however much apparently diminished ca.1740, was still prosperous enough until the mid-1760s.

No specific evidence for this ca.1740 decline is offered in Latimer 1893, but adverse trade conditions brought about by the War of Jenkins' Ear and the War of Austrian Succession (1739-48) may have been the reason. Latimer does note (1893: 236) that English trade did suffer severely at this period, with Spanish privateers off every port, and that Bristol was particularly hard hit. In 1742 the Merchants' Society of Bristol petitioned the Commons to make more adequate provision for the protection of commerce, alleging trade was becoming daily more precarious. According to Latimer the local clothing trade suffered a check from which it never recovered and pauperism markedly increased, though a prosperous harvest in 1743 brought some relief to the clothing trade and to other city industries in 1744 (Latimer 1893: 236, 259).

It seems quite possible, therefore, particularly bearing in mind that it was two similar types of interruptions to trade in the mid-1760s and -1770s which almost killed the Bristol pipemaking industry, that the outbreak of hostilities in 1739 caused a sharp drop in the fortunes of an industry which had specialized so exclusively on the export market. With the sudden loss of much of this trade, masters would cease to take apprentices and would lay off journeymen. The younger journeymen in particular would be the source of potential freemen when voters were sought or drives made to enforce the freedom laws, and a scattering of such people now out of work would account for the sudden decline of entries in the burgess rolls. There is indirect evidence for something of this sort from the poll-books, which show a steadily-increasing drift of pipemakers away from Bristol from the 1730s; and also from the first trade directory of 1775 which suggests the then pipemaking businesses were old-established family concerns and reinforces the idea there was relatively little scope for fresh apprentices and journeymen.

After ca.1740, therefore, the Bristol pipemaking industry, while still relatively prosperous, retrenches itself in a smaller number of established family concerns. As the century progresses the amount of known Bristol material declines, but Bryant's reminiscences indicate that Bristol pipemakers remained relatively prosperous until the Stamp Act troubles of 1765-66; and pipes continued to be shipped to North America until the American Revolution started in 1775.

After the American Revolution Bristol pipemakers never recaptured the North American trade, which already from the 1760s had begun to be supplied particularly from Liverpool, which centre continued to hold this market into the earlier C19 only to be replaced in its turn from the 1840s until about the 1880s by Glasgow; but scattered finds of Joseph Edwards and Anna Viner pipes datable to the end of the C18 and the beginning of the C19 and of Ring pipes probably all datable to the earlier C19, show, as does what port-book evidence is at present available, that an attenuated trans-Atlantic trade in Bristol pipes did restart after the American Revolution and continued, on the evidence of pipemakers of the time, until the later 1840s.

The C19 also sees a revival, to a limited degree, of Bristol home trade. The Okely business in the first quarter of the C19, the Rings who were in business for most of the century, and the Hawleys who possibly took over from the Rings in 1883 or 1884 and continued until the beginning of the C20, made pipes which reached Somerset, Gloucestershire, and Monmouthshire. In the last decade of the century, one firm, almost certainly that of Corcoran, was producing "personalized" pipes for an hotel in Swansea and for another in Devonport. By the time the Hawleys and Corcoran were in business, however, the Bristol pipemaking trade was almost dead; and in December 1921 the last Bristol maker closed.

With the advent of the C19 the Bristol pipe-industry revives, picking up ca.1805 and steadily increasing to reach a score or more businesses in the 1840s and 1850s. In the 1860s, however, there is a dramatic and final crash: the number of recorded makers drops almost a third between 1863 and 1867, and by 1900 only three firms were left. Although a few of the early C19 are related by apprenticeship or descent to those in business in the prosperous times of the C18, the C19 industry seems to owe little to traditions from that period. Quite suddenly, and for no known specific reason, the industry migrates in the 1810s to the area at that time and until 1835 immediately outside the eastern city limits subsequently known as St Jude's; and from that time the industry becomes progressively entrenched there as pipemaking premises elsewhere in the city disappear, the last firm of all working there from its first reference in 1815 to its closure in 1921. In 1850 an account of the life of a woman-pipemaker doing work contracted out from one of the businesses in the area indicates chronic poverty both among workers in the pipemaking trade and in the St Jude's area in general, despite the fact that ca.1850 the Bristol pipemaking industry was at its C19 zenith; and certainly before the end of the century accounts indicate St Jude's was one of the worst slums in the city.

In the C19 the major rival to Bristol in its home market was again the Broseley industry, or to be more specific the business of the famous Southorn family of Broseley, whose products were widespread and renowned in the second half of the century (Appendix II). Indeed, to judge from museum collections the family completely dominated the Broseley industry at this time, for with the exception of the occasional Smitheman-marked product all the C19 Broseley material noted by this writer extending through South Wales and the West Country and as far south as south Devon, Dorset, and Hampshire is Southorn-made.[87] In 1884 indeed, as noted in Section VI above, T. Lovett of the "Greyhound" inn at Bristol advertised himself as an agent for Southorn and company, indicating the dominant position of the firm. Outside the area covered by this writer products of the Southorns are noted from as far away from Broseley as Sussex (Atkinson 1958: 120). At the beginning of the C20 the Southorn in charge of the firm was quoted (in Randall 1908: 442) as claiming he had never had greater demand than at the present time, suggesting Southorn was still prospering at a time when the Bristol industry was virtually dead.

The reason for the Southorn family's fame as pipemakers undoubtedly lay with their superior-quality products, and there is other evidence in the museum collections examined by this writer to suggest that while the clay-pipe industry in general was dying in the second half of the C19 and its products more and more associated with the poor and the working classes, fashionable people were prepared to continue with clay pipes provided their quality and appearance were suitable to their tastes. As well as the half-full crate of Belgian pipes from Gisclon of Lille at Wimborne Minster (noted in 3: IV, see FIG 107), several products of the East London family of Crop (4: VII), who specialized in superbly-crafted effigy and other bowls as well as producing more ordinary-shaped pipes, occur in these collections, as do a few products of the famous French firms of Gambier, Fiolet, and Scouflaire (3: V) and possibly those of the Westerwald firm of Müllenbach and Thewald (3: II), all of which suggest a continuing if attenuated market later last century for the more sophisticated types of clay pipe - the tobacconist who stocked the Gisclon pipes at Wimborne Minster also had a crate half full of Southorn pipes, suggesting the social equality of the two firms' products. One may perhaps suggest, therefore, that the various Bristol firms of last century or at least the later part of it were unable to produce pipes sufficiently good to attract this class of smoker; as noted in Section VI above, apart from there being a Southorn agent in Bristol in 1884 there was also listed in the trade directories under pipemakers for that year an "Importer of fancy goods" and in 1899 a firm claiming to be "the largest importer of French pipes in the West of England".

There is perhaps one area of study which may modify, or at the very least add considerable detail to, the pattern of Bristol's oversea pipe trade, and that is the Africa trade. Historical archaeology in West Africa is only just commencing, and few reports of work done are available though pipes have certainly been among artefacts found.[88] In view of Bristol's part in the slave trade in the earlier C18 one must assume that a very considerable amount of Bristol pipe material is likely to be found on excavations of trading forts and contact-period native sites from 1700 onwards and possibly earlier. Thomas George's family recollections of pipemaking in Bristol in the early C19 may be confused, but his reference to pipes being made for the West African trade at this time can be associated with historical records for the period, suggesting Bristol trade with West Africa continued, or was revived, in the earlier C19. Then again, when George's closed in 1921 it was noted that until ca.1900 the firm had exported to South Africa, indicating there was a long-standing export trade in pipes to Africa extending, perhaps discontinuously, over some 200 years about which at present nothing is known either as regards shipments or material to be found from excavations.

So, with the closing of the George firm in December 1921, over 300 years of continuous pipemaking in Bristol ended. Much of the trade had been for export; probable products of Richard Berryman, the earliest-known Bristol pipemaker, occur in Maine and Virginia, and pipes of Edward Lewis I, another early Bristol pipemaker, have also been found in Virginia, indicating oversea trade as early as the second quarter of the C17 while the George firm as noted above was exporting to South Africa up to ca.1900. If home trade occupies a much less spectacular position in Bristol's pipemaking history it did provide in the second and third quarters of the C17 pipes for a large area of the lower Severn basin, restarted a C19 pipemaking industry in Swansea, and was managing to sell pipes in the counties surrounding Bristol and custom-marked products as far away as Swansea and Plymouth as late as the end of the C19.

SECTION VIII:
ST JUDE'S AND ITS 19TH-CENTURY PIPEMAKERS

The C19 pipemakers' ghetto referred to here and earlier in this work as St Jude's comprises the small area between the Frome and Lamb St-Lawfords Gate-Pennywell Rd occupied by Great and Little George Sts, Great and Little Ann Sts, New St, Wade St, and Eugene St (FIG 167). Prior to 1835, when it was included within the extended Bristol city limits, this area lay immediately outside the city, the boundary in fact passing through the back-gardens of the properties on the SW side of New St (FIG 168). The area was part of the vast parish of St Philip and Jacob which at one time extended from inside the city as far west as Bitton, half-way to Bath, the part outside the city being known as St Philip and Jacob Out-parish and the part inside being called the In-parish (Ralph and Williams 1968: xx-xxi and refs). St Jude's as a name for the pipemaking area is historically correct only from the building and dedication 1848-49 of St Jude's church at the angle of Lamb St and Bragg's Lane overlooking, or more accurately in, the complex road junction formerly known as Pointz Pool; however, for brevity and convenience the term will be used for the area from its first development at the beginning of the C18 onwards.

It must be emphasized that this survey of St Jude's is strictly preliminary. The area proved to be an unexpectedly fascinating topic of research, but one which unfortunately would have become a major and entirely separate study in social history had it been pursued to its logical conclusions. The survey relies primarily on a brief examination of readily-available published material - mainly C19 accounts of poverty in the area - on evidence from standard sources such as Latimer and from some of the maps and plans dating from the later C17 to the present day which include the area, on trade directory evidence, and on several visits to the area to take photographs and talk to locals. There is, however, a rich store of property-deeds for the area in the Bristol Archives Office; a brief perusal of these indicated many go back to the original development of the area from the first decade of the C18 onwards, but it was impractical in the time available to study even those documents relating to pipemaking properties. A study of these records would be greatly rewarding to social and economic historians of Bristol, for no study has yet been made of this apparently planned eastern suburb of the city.

To this writer, it would appear that industrial archaeology should be the ideal field from which to make such a study. In the Introduction to this work, this writer referred (p. 7) to the need to direct history towards its ultimate goal - the human aspect, and how people lived; and in the Conclusions (pp. 768-80) the same point is made, with specific reference to the future of industrial archaeology. There is, basically, no especial importance to be attached to clay pipes, either in themselves or as archaeologically-recovered objects: it is the evidence they yield which is important, and in this particular instance the evidence has ultimately led this study to where and who manufactured these pipes. The following section is strictly a preliminary study, as stressed above; but it is a glimpse at what archaeology should ultimately be striving for, namely greater knowledge of how people lived, and it is hoped that it will stimulate interest in an interdisciplinary approach to such a research project on St Jude's, and perhaps from that to other working-class area studies both in Bristol - e.g. St Philip's Marsh - and in other industrial centres.

In the C19 and into the C20 St Jude's was probably the worst slum in Bristol, but progressive clearance from the early 1930s into the 1960s and the erection of large corporation multi-storey dwellings have largely removed the older properties and to some degree modified the original layout of the area. Unfortunately, Bristol had no Mayhew or Booth in the C19 to record its slums and no publication comparable to the recently-deceased East London Papers with its interdisciplinary approach to local history, nor has St Jude's benefitted from studies of the kind made in the 1950s and 1960s on social life and change in East London (Young and Willmott 1957, 1962 ed; Townsend 1957, 1963 ed; Willmott 1966, 1969 ed); but there are two C19 accounts of the squalor and poverty in St Jude's which, if they lack the approach of Mayhew and Booth, lose little in their directness of reporting.

The pipemaking area as defined by the roads above forms an approximate rectangle and appears to have been deliberately planned as a single piece of urban planning, for it conforms to a rectangular grid pattern and may perhaps be the first example of such planning in Bristol, dating as it does to the early C18. The long axis, which runs SW-NE, is that of Great Ann St-Little Ann St and Great George St-Little George St which runs parallel to the former and to its NW. These are bisected, though not at their midpoint, by Wade St, which runs NW from Lamb St-Lawfords Gate cutting the long axis of the development at right angles and, by crossing the Frome and becoming Houlton St and joining Newfoundland St-Newfoundland Rd (to use the modern names for these latter streets) gives what even today is the only access to the area from the NW. Wade St divides George and Ann Sts into "Great" - SW of Wade St - and "Little" - the shorter part to the NE; why there should be this division in nomenclature is uncertain, for on the face of it there seems no reason unless the development NE of Wade St, though clearly planned from the beginning, commenced later enough than the other side that someone regarded the areas as separate enough to have modified names. There is some support for this suggestion from various C18 and C19 plans: Rocque in his Plan of the city of Bristol 1742 (FIG 169), though he appears to show all the area except part of the NW side of Little George St built up, has "George's Street" and "Ann's Street" SW of Wade St and no names on their continuations NE of Wade St; Donne in his Plan of the city of Bristol delineated from actual survey published 1773 (FIG 170) names "Great Georges Street" and "Litt. Georges Str" but has only "Anns Str" SW of Wade St; while Ashmead in his superbly-detailed Plan of the city of Bristol and its suburbs of 1828 (FIG 168) has "George's Street" and "Little George's St", and "Anne Street" and "Little Anne Street"; all of which wordings tend to suggest Little Ann and Little George Sts were subsequent extensions to the original streets SW of Wade St.

The NE end of the rectangle is Eugene St, which runs parallel to Wade St from Pennywell Rd (to again use the modern name) across the NE ends of

Little Ann and Little George Sts and terminates with its junction to the latter. The SW end is delimited by New St, which runs from what was formerly Pointz Pool, now the beginning of Lamb St, across the ends of Gt George and Gt Ann Sts but does not parallel Wade and Eugene Sts, following instead the line of the pre-1835 city boundary here running somewhat west of NW and thus making Gt George St slightly longer than Gt Ann St. Beyond its junction with Gt George St, New St continued its line towards the Frome until it came to what was originally the Friends' Workhouse (see below - site now occupied by the New St Flats, adjacent to the present Friends' meeting-house on River St). From the Workhouse there appears always to have been an open way along the SE bank of the Frome to Wade St - it is so indicated but with no name by Rocque in 1742 (FIG 169) and Donne in 1773 (FIG 170) - and this is River St on Ashmead's 1828 plan (FIG 168) and exists as such today, but though Rocque indicates paths from the river at Wade St to Little George and Eugene Sts no continuation of River St NE of Wade St was ever built.

Very little is known of the history and development of the St Jude's area, particularly in the C18. Matthews appears to be the earliest writer to refer to it, noting in the introduction to his Directory for 1793-94 (1794: 30) that "The names of Ann Street, George's and Eugene streets, leave to doubt of the times in which that populous suburb to the East was planned and built", from which one assumes Ann St was named after Queen Anne (1702-14) - who visited Bristol in 1710 - and presumably George and Eugene Sts after, respectively, Anne's husband Prince George (D 1708) and the Austrian general Prince Eugene who was Marlborough's second in command during his campaigns between 1704 and 1709. Latimer is more specific. The suburb beyond Lawford's Gate was being developed apparently from the late 1650s, for in 1660 the City Council "taking note of the great number of cottages lately erected and now erecting outside Lawford's Gate, and conceiving it to tend to the great impovrishment of the city" tried unsuccessfully to stop the landowner, Mr Chester, from further building (quoted in Latimer 1900: 300; cf Millerd's 1671 plan - FIG 171): at the beginning of the C18 this area was still the only real Bristol suburb and was occupied "by a few hundred weavers, colliers, and market gardeners" (Latimer 1893: 3), but ca. 1711 (ibid. 92)

> A considerable extension of the eastern suburb...took place...by the construction of Wade St, reat George and Great Anne Streets, etc. The owners of the ground, Nathaniel Wade and Abram Hooke, built a bridge in 1711 over the Froom, at Wade Street, for the development of the estate; and as Wade, though holding an important office under the Corporation, was generally unpopular from his abject confessions to James II., after being a leader in the Monmouth rebellion, the construction was universally known as Traitor's Bridge, and is even so designated in the minutes of the Common Council.

Wade St was thus clearly named for Nathaniel Wade, who died in 1717.

The development of the area can also be seen on later editions of Millerd's An exact delineation of the famous city of Bristol and suburbs which first appeared in 1673. With the exception of two apparently connected buildings on the NE side of Pointz Pool (now the SW end of Lamb St) and gardens and an orchard extending from these buildings SW to the properties on The Back Lane (part of Redcross St by 1742) which must have occupied the SE end of New St, the first edition of this plan (FIG 172) shows St Jude's to be entirely open, and one of idyllic pastoral charm to judge by the Latin dactylic hexameters penned with unwitting irony across it:

> *Huc sua quosque trahit iuvenesque senesque voluntas*
> *Grammina nonnulli nonnulli flumina poscunt*
> *Hic tardi celeres capiuntur arundire pisces*
> *Hic lassi modico recreantur membra natatu*
> *His quoque contemplans studiosus inambulat artes*
> *Et laetus laetam comitatur amicus amatam*

The area may in fact have been water-meadow; it is flat on either side of the river and certainly in the May 1720 flood the Frome covered Earls Mead, the opposite side of the river from St Jude's, to a depth of several feet (Latimer 1893: 125). A similar flood in October 1882 submerged this same area, now housed, again to a depth of several feet, extending along Newfoundland Rd and St and as far as St Paul St at Portland Sq (Latimer 1887: 520-2).

By the fourth edition of Millerd's plan, however, ascribed to ca.1710 but in view of its depiction of Wade's bridge presumably at least as late as 1711 (see above), a considerable build-up is depicted in the south and SW part of the area (FIG 173). The obviously subsequent nature of the additions to the plan together with Millerd's basic lack of detailed accuracy - for although at the large scale of ca.24-1/2 ins to the mile it is done in the bird's-eye view tradition - make definite interpretation difficult; but buildings appear to cover the NW side of Lamb St as far as the line of Wade St, both sides of New St about as far as the line of Gt George St (what appears to be two round haystacks here probably indicate a farm here also, however), and Gt Ann St as far as Pinnel St (a street parallel to Wade St but nearer New St and joining Gt Ann St to Pointz Pool - see below), with some development on the banks of the Frome. Although Wade's bridge is shown and the modern Houlton St running from the bridge to the NW across Earls Mead also appears, Wade St is depicted only by two parallel dotted lines superimposed on the Latin inscription; it is possible, however (see below), that this vagueness is occasioned by the makeshift nature of the additions to the plan particularly where an item (in this case the inscription) was already occupying the space.

Logically, New St should be the earliest part of the development in view of its name, and its positioning - clearly designed to be directly adjacent to the city boundary - would also suggest it to be the natural place to begin to lay out the area. The position of the Friends' Workhouse at the head of New St makes it difficult to believe New St could have been constructed before the workhouse, and would suggest the street was either originally built to serve it or else laid out subsequent to its construction; a terminus post quem would therefore be the construction of the workhouse, which was 1696-98 (Latimer 1900: 485; cf Raistrick 1950: 85-6, 1968 ed; Mortimer 1967: 18 and 1971: xiv). As Latimer notes elsewhere (1893: 92), Wade's bridge over the Frome was constructed in 1711 to give access to the development, so that opening up of the area must have started by then; in fact the brief perusal of the area's property deeds indicates occupation starting several years before 1711. The property latterly known as 21-22 Lamb St, for example, for which there are documents covering the period 1708-1931 (BAO 4627 (594)a-D), is noted in the earliest deed as having been granted by Wade to a Bristol carpenter James Baugh on 6 February of the fifth year of queen Anne - 1706/7 - while in the deed for a property apparently at the corner of Wade and Lamb Sts dated 6 March 1707/8 (BAO 12779(2)) there is a reference to the thoroughfare "lately laid out by Nathaniell Wade of the said Citty [Bristol] and called Wade street". Ann St was in existence by 1715/6, when the property latterly known as number 51 and owned 1810-73 by the George pipemaking family (and after them by the Bristol City Mission - see below) was rented to a tiler Thomas Hallier from Wade, for it is specifically stated the street was laid out, and also that the land between this property and Wade St was "void ground" (BAO 1380(1b),(23),(26)). In the property-deeds the St Jude's area is regularly called "Crotwells or Lamb Ground", suggesting a former owner may have been one Lamb. Lamb St, though the name does not appear on plans until Rocque's of 1742 (FIG 169), presumably takes its name from this; as a road it probably existed in medieval times, being the route to Gloucester - it appears as the "Gloucester Road" on Millerd's various maps.

The first plan to show the area in accurate detail is Rocque's of 1742, done to a scale of 26 ins to the mile (FIG 158). This appears to indicate the entire area was built up with the exception of about half of the NW side of Little George St, though as noted earlier the names "George's Street" and "Ann's Street" are not extended beyond Wade St which might suggest the area NE of Wade St had either not yet been developed or was only in the process of development. Certainly blocks of building are clearly shown on the NE side of Wade St nearest Traitor's Bridge and turning the corner to extend partway up the NW side of Little George St, and blocks of buildings are also shown in the NE side of Eugene St, which suggest the area was well on its way to being completely built up. There can be no doubt the area SW of Wade St was thoroughly developed by 1742, for already courts and alleys have been laid out to provide access to the rear of various properties, doubtless to service additional houses built where back-gardens had been. This in itself suggests St Jude's was becoming a densely-populated working-class area with all the makings of a slum (cf 4: VI).

Pinnel St, noted above as running parallel to Wade St and joining Gt Ann St to Pointz Pool and possibly appearing on Millerd's ca.1710 plan, was one such alley. At its Pointz Pool end, Rocque in 1742 (FIG 165) depicts what appears to be steps, or some similar barrier, suggesting through traffic was limited. Ashmead in 1828 (FIG 168) shows this end to have a definite constriction, indicating passage was probably restricted to foot-traffic; and the 1883, 1903, and 1952 OS plans (FIGS 174, 175, and 176) indicate there was a covered passage at this point. A sketch of 1907 looking down Pinnel St to Gt Ann St from Pointz Pool (FIG 177) reveals this entry to have been a flat-roofed passageway with iron bollards blocking vehicular traffic; fruit or vegetables are being sold by a vendor at the entrance to the passageway, and Pinnel St is seen to comprise largely two rows of three-storey houses, as is also Gt Ann St in the background

(Stone 1909: 259 lower illus.). Above the Pinnel St archway a window is shown, indicating housing extended over the passage: this means of providing extra room and thus extra rent is commented upon in Leeds slums (Beresford 1971: 107). Rocque also indicates a cul-de-sac running off Pinnel St towards New St and called Holland Ct, clearly indicating the built-up nature of the New St-Gt Ann St-Pinnel St-Pointz Pool block.

By Ashmead's time a regular network of passages and alleys has developed within this block, one leading on to Gt Ann St and another to New St. The name Holland Ct has gone, and in its place have appeared Pinnel's Ct - the entrance off Pinnel St - and Gaye's Ct - a block of buildings in the centre of the area. By 1883 (FIG 174) names have changed again, Pinnel Ct now being the name given to a court opening off the opposite side of Pinnel St, a court marked but not named by Ashmead in 1828. A block of buildings on the SW side of Ashmead's Pinnel's Ct is now called Burge's Place - there is apparently no name for the actual passageway - and Gaye's Ct on Ashmead's plan has become Burge's Ct, though it would appear by 1883 Burge's Ct had been walled off from entry past Burge's Place and that the only entrance to the former was now from New St. The 1883 OS plan shows at large scale just how complex a set of passages, dwellings, and commercial buildings (for example, a malthouse behind the "Dolphin" on New St) had developed in this warren. Finally, in the 1950s clearance and rebuilding removed Pinnel St entirely together with the part of Gt Ann St running SW from it to New St, erecting the large multi-storey blocks of corporation flats called Charleton House and Langton House on the line of Pinnel St and the site of Burge's Ct repectively and leaving the surrounding area open (FIG 178).

A lane similar to Pinnel St but allowing unimpeded thoughfare joined Gt Ann and Gt George Sts a little to the NE of Pinnel St's junction with Gt George St: this is called Steer's Lane by Rocque in 1742 (FIG 169) and Ayres Lane by Ashmead in 1828 (FIG 168); and as Eyer's Lane it still exists, though it has been entirely opened out (FIGS 166-67). It is indicated, but not named, on Donne's 1773 map (FIG 159). Rocque indicates no courts off this lane, but Ashmead indicates an unnamed one on the SW side by 1828 and it is depicted in detail, though again unnamed, on the 1883 OS plan (FIG 170).

Off Gt George St, Rocque in 1742 (FIG 169) indicates one through lane similar to Pinnel St and Eyer's Lane connecting Gt George St with what at least by Ashmead's time (FIG 168) was called River St, and also two cul-de-sacs, both on the NW side of Gt George St. The through lane is called Tanners Lane by Rocque (an indication of one of the industries of the area, as noted later) but by 1828 Ashmead shows it as Bull Lane, under which name it still exists (FIG 180-81). It is marked, but unfortunately not named by Donne, in 1773 (FIG 170). Already by Ashmead's time its length on both sides was occupied almost wholly with industrial premises, in which state it remained until mostly cleared in the 1960s. The two cul-de-sacs Rocque names as Bull Ct (opposite Eyer's Lane) and - half-way between Bull Ct and New St - Lancashire Ct. Both are indicated by Donne, but neither is named. Bull Ct is shown but not named by Ashmead but by this time may have been a yard for the factory premises behind and extending to Bull Lane; the

1883 OS plan (FIG 174) shows it, also unnamed, and suggests it probably was connected with the factory. It is indicated on the 1903 OS plan (FIG 175), but by 1952 (FIG 176) had either gone or been roofed over as part of the factory.

Ashmead shows two courts where Rocque has Lancashire Ct: Lancashire Ct appears to be Graces Ct and immediately to its NE (i.e. towards Bull Ct - if it was still so called in Ashmead's time) is Mais Ct. As Grace's Ct and Maye's Ct they are depicted in 1883 as typical St Jude's cul-de-sacs, lined with dwellings, and they are still there in 1903: what appears to be their site is indicated on the 1952 and 1963 OS plans (FIGS 176 and 178) though now surrounded by, and perhaps part of, the ever-encroaching factory to the NE. A photograph of Grace's Ct (FIG 182) appears in an article of 1903 (Anonymous 1903: 450); it shows three-storey dwellings on the NE side and an apparently blank wall at the end which must be the back of the blue factory.

Rocque also indicates in 1742, though he does not name, a cul-de-sac on the SE side of Gt Ann St rather more towards Wade St than Pinnel St (FIG 169). Donne also shows this in 1773 (FIG 170), but indicates no details. Ashmead marks two alleys in this area in 1828 (FIG 168) and they appear on the 1883 OS plan (FIG 174), but neither has a name on either plan. In fact, the remnants of these alleys appear to be depicted on the 1972 OS plan (FIG 176). From the 1883 plan they appear to lead to yards behind Gt Ann St properties.

By 1742 the present Houlton St, the extension of the line of Wade St beyond Frome (or Traitor's) Bridge[89] marked on Millerd's ca.1710 plan, had also been developed across the open meadows on Earls Mead, its SW side being depicted as entirely occupied by buildings and gardens though its NE side was open except for the corner adjacent to the bridge. Rocque in 1742 (FIG 158) calls this street Newfoundland Lane, a name which he also confusingly gives to the thoroughfare which it joins at the opposite end from the bridge, the present Newfoundland Rd-Newfoundland St. Donne's depiction of this area shows no substantial changes by 1773, but the name Holton [sic] St has appeared; Sketchley's Bristol Directory... of 1775 lists a pipemaker on "Holton" St. This area, like St Jude's, lay immediately outside the city limits; in fact Rocque depicts the city boundary, having come up the NW bank of the Frome from the New St area, as cutting through the back of the properties on the SW side of Houlton St much like it does at the rear of the New St properties, but Donne (FIG 170), Ashmead (FIG 168), and the 1883 OS plan (FIG 174) all indicate the boundary followed the back line of the Houlton St properties, suggesting Rocque was probably inaccurate here.

Why Wade built his bridge across the Frome to allow the extension of the line of Wade St is uncertain. It is logical enough that he would want to avoid the more or less central NW-SE cross-road for his development becoming a dead end, but the bridge offered no connections except to the open fields of Earls Mead. Millerd, if he is accurate, indicates the present Newfoundland St (Newfoundland Lane on his plans) did not extend as far as the line of Houlton St in 1673 (FIG 172) and was only housed about as far as the present line of Pritchard St-Stratton St - where Newfoundland St now begins as an extension of Milk St. Neither Rocque in 1742 (FIG 169) nor Donne in 1773 (FIG 170) indicate any development NE of about this line, and even in 1828 Ashmead indicates (FIG 168) development had progressed little beyond Houlton St. Beyond its junction with Houlton St, Newfoundland Lane is described by Donne simply as "Lane to Fields", with the city boundary running along its line, so presumably it offered no through route in that direction; if Houlton St was used for access to St Jude's to any extent it must have been to reach central Bristol by way of Newfoundland St, Milk St, and the Horsefair. Ashmead in 1828 in fact shows the corner of the Houlton St-Newfoundland St junction nearer the city rounded off, suggesting traffic turned predominantly to and from the SW and the city.

At a practical level, access to St Jude's must have always been from Old Market and West Sts. West St, outside the city limits at Lawford's Gate, was built up by 1671 to judge by Millerd's map of that date - his "London Road" (FIG 171) - and his plan of ca.1710 (FIG 172) shows what appears to be a very inaccurate representation of the present Bragg's Lane or at any rate that part of it lying between Gloucester Lane and West St, suggesting this area was being developed at this time. The area between Lamb and West Sts certainly appears to be solidly developed as far as the farther side of Brick St by Rocque's time, with further development along the road to London and Bath, and Donne indicates this as well (both mark Bragg's Lane, though only its farther end is named, being called Lime Kiln Lane). Development along the Gloucester road, however, does not seem to have started beyond Pennywell Lane even by 1773 (FIG 170), though it had by 1828 (FIG 168). Essentially, all roads leading into or out of St Jude's connected either with Pennywell Lane (Eugene St), Lamb St (Wade St), or Pointz Pool (Pinnel and New Sts); and the natural route into the city would have been through Pointz Pool and Bull Paunch Lane to Old Market St. The only other access to St Jude's was by the alley called Teague's Ct which Rocque depicts linking New St opposite Gt Ann St with Redcross St; this connection is also depicted in 1773 and - in a convoluted version - in 1828. This relative lack of access to St. Jude's and its position between a main route past the area on its SE and a river on its NW with only one road-bridge crossing it must certainly have contributed to the isolation of the area from the mainstream of city development. Dead ends and backwaters, reinforced by factors such as malodorous factories or open sewers, made for slums far more than did age of houses (Dyos 1967: 25; Dyos and Reeder 1973: 364). By 1883 (FIG 174) demolition had cleared the south end of the SW side of New St; by 1903 (FIG 175) Gt Ann St had been extended to meet a new thoroughfare, St Matthias Park, opened 1887, which had been cut through slum tenements SW of New St to give traffic from Narrow Weir access to Lamb St and beyond. However, even today the nature of its layout gives St Jude's little access save to the SE, emphasizing its isolation between New St, the Frome, and Eugene St.

Ashmead's plan of 1828 (FIG 168) is the first to show details of individual properties, and the heavily built-up nature of the area, the appearance of dwellings where back-gardens had been and of courts and alleys to serve them, the erection of industrial premises - all signs of slum or semi-slum development - are all indicated. It is particularly interesting to compare Ashmead's survey with the 1903 OS plan (FIG 175) at the same scale, for one can see how much prolification of slum dwellings in back-gardens had taken place in 75 years. In 1828 signs of this development appear in all the St Jude's blocks, but only that defined by New, Gt Ann, Wade, and Lamb Sts is depicted as heavily covered by such occupation; by 1903 not only has this block become an almost solid sea of courts and alleys but the same degree of concentration has spread over the whole area with the exception of the NE part of the Wade St-Little George St-Eugene St-Little Ann St block, where a few properties are still depicted as having most or even all their original back-garden area. St Jude's, to use T.H. Smith's neat phrase describing the Nichol in Bethnal Green, "prolificated within itself", housing being built in the yards of other houses and courts being fitted into vacant spaces, gardens, and between built-up areas (T.H. Smith 1959: 41; cf Bezodis et al. 1957: 5; Dyos 1961: 109-13; and Mole 1973: 818; for similar developments in other centres see Chapman and Bartlett 1971: 223-6; Chapman 1971: 140; Beresford 1971: passim; Ward 1962: passim; Treble 1971: passim and for a classic case of the decline of an aristocratic area to one of lower working-class with consequent infilling of courtyards and gardens see Sorlin 1972, esp. cf map of 1763 on p.84 and that on p.86 showing the same 450-acre area of the Marais district in Paris before present restoration commenced).

Some idea of the density of occupation can be had from examining the 1883 plan (FIG 174) and listing the number of named courts, lanes, or roads serving dwelling-areas behind the main thoroughfares of the area. Those named are as follows:

Lamb St, NW side, between New and Wade Sts:
Pinnel St (see above)
Harris Ct (called Taylor's Court by Ashmead)
Whipperton Ct (shown but not named by Ashmead)
Crocker's Ct (shown but not named by Ashmead)
Gt Ann St, SE side:
Pinnel St (see above)
Gabriel's Ct (shown but not named by Ashmead)
Baker's Ct (shown but not named by Ashmead)
Gt Ann St, NW side:
Eyer's Lane (see above)
Broad's Ct (shown but not named by Ashmead)
Cotton's Ct (shown but not named by Ashmead)
Little Ann St, NW side:
Pratten's Ct (shown and named thus by Ashmead)
Swan Ct (a very narrow alley running through to Little George St; shown but not named by Ashmead)
Gt George St, SE side:
Bolton Ct (called Gulifers Ct by Ashmead, at which time it also connected with Wade St)
Gt George St NW side:
Grace's Ct (see above)
Maye's Ct (see above)
Bull Lane (see above)
Little George St, NW side:
George's Court (shown but not named by Ashmead)
New St, NE side, between Lamb and Gt Ann Sts:
Burge's Ct (called Gaye's Ct by Ashmead, at which time it also connected with Pinnel and Gt Ann Sts)

New St, extreme NW end, curving round school on site of the Friends' Workhouse:
River Ct (shown and named thus by Ashmead)
Wade St, SW side, between River and Gt George St:
Milsom Ct (shown but not named by Ashmead)
Wade St, NE side, between Little Ann and Lamb Sts:
Arnold's Ct (marked but not named by Ashmead)
Eugene St, NE side:
Allen Ct (called Dolman's Court by Ashmead)
a large but unnamed cul-de-sac between allen Ct and Pennywell Rd (shown but not named by Ashmead; still in existence - FIGS 185-86 - but no name known)[90]

These are (with the exception of the last) only named courts: there are many more indicated on the 1883 plan with no name, and while many of these probably served commercial yards or similar open spaces some certainly served dwellings - for example, two on the NW side of Little Ann St one of which is Ashmead's Porter Ct (FIG 168).

All the courts and lanes recorded in 1883 (FIG 174) also appear in 1828 on Ashmead's plan (FIG 168), indicating the area had been committed to high-density occupation already by the early C19. As noted above, Matthews in 1794 was already speaking of it as "that populous suburb". This bears out the impression noted above from Rocque's plan, that from early in the life of the St Jude's development and perhaps from its inception the area was designed for the poorer classes.

Not surprisingly, outbreaks of fever were recorded in 1832 in the Lamb St-Bragge's Lane area and in Wade St; and outbreaks of cholera in Lamb St, New St, and the area of tenements between New St and Redcross St just across the city boundary (De La Beche and Playfair 1845: map; map also catalogued separately by Bristol Public Libraries as B.1483). In 1831 many victims of Indian cholera were buried in St Philip and Jacob churchyard (Latimer 1887: 186-7). In 1845 it was recorded that much of the sewage from St Paul Out-parish (the area across the Frome from St Jude's and St Philip and Jacob Out-parish) appeared to run into a tributary of the Frome at Baptist Mills and that "A large portion of the sewerage in the out-parish of St Philip and Jacob is in a miserable state...." (De La Beche and Playfair 1845: 250). At least in mid-century the city scavengers apparently did not have to clean the pavements, and as courts were considered pavements as opposed to roads, the scavengers did not enter them, forcing the inhabitants, if they wanted sufficiently to have refuse and ashes collected, to take them to the street (De La Beche and Playfair op. cit. 249-50). This only aggravated the already unhealthy state of courts and cul-de-sacs with their lack of fresh air (cf Treble 1971: 176). Further, according to De La Beche and Playfair (ibid. 256), few if any large towns in England had as inadequate a supply of water as did Bristol - De La Beche and Playfair give no details, but immediately prior to the time they were writing, in the early 1840s, Liverpool's water-supply was so poor that water was made available to the general population only on alternate days for periods of 1 to 2-1/2 hrs (Treble 1971: 186).

Population density figures and mortality rates are unfortunately not readily available for St Jude's, but the number of one-room abodes noted by observers of the area in the mid- and later C19 (see below) leave no doubt that density must have been comparable to that recorded for parts of East London in the second half of the century (4: VI) and no doubt mortality was of the same order. The Nichol area of Bethnal Green with examples of 90 people in 10 rooms and an 1889 mortality rate of 4% (T.H. Smith 1959: 41) cannot have been much worse than the worst Bristol slums, for De La Beche and Playfair note that in the 1840s Bristol as a whole had an average of 6.1 persons to a house with frequent occurrences of families of five and six occupying a single room and an average mortality rate of ca.3%, third only to Liverpool and Manchester (De La Beche and Playfair 1845: 258, 260). Further, estimates in 1842 gave the average age of death for the labouring classes in Manchester, Bethnal Green, and Liverpool as 15, 16, and 17 years respectively, appreciably less than half the averages given for the gentry in these same places and also half that for the labouring class in rural Rutlandshire (E.P. Thompson 1963: 365, 1968 ed; see also p. 372 above); while in the Potteries, a singularly squalid slum in the Notting Dale area of northern Kensington in London, the average life expectancy in the period 1846-48 was as low as 11 years 7 months, 80% of the deaths recorded there for this period being of children 15 years old and younger (Malcolmson 1970: 77-8, 177 table 6). In 1871 the average death rate for a number of Potteries' streets was 3.64%, while as late as 1896 in what was called the Notting Dale Special Area - the streets immediatley south of the original Potteries - the death rate was no less than 5.0%, nearly half the children in Notting Dale during the years 1896-98 dying before their first birthday (Malcolmson 1970: 81-3, 179 table 8, 180 table 9). All this would lead one to conclude that the average age at death for the Bristol labouring class in the mid-C19 would have been only a little higher than the 17 years figure for Liverpool and the figure for St Jude's not greatly higher than the 11 years 7 months figure for the Potteries and that the St Jude's figure might not have improved by the end of the century.

Unfortunately no plan prior to Ashmead's indicates individual properties so that it is not known when the industrialization of the area begins, but the River St frontage is certainly predominantly factories by 1828 (FIG 168); Ashmead indicates several large buildings though only one - a glue factory midway between Bull Lane and Wade St - is identified as to product. The 1883 OS plan (FIG 174) indicates this property had remained in that line for much of the C19, for it is called there a gum works, though it is indicated by this time it was disused. By 1903 (FIG 175) it was a brewery, but by 1952 (FIG 176) considerable changes had occurred in the area and the use of this particular property is not given; in 1963 (FIG 178) it appears that the factory immediately to the SW had taken over some of the property, the remainder being described obscurely as a "Works".

The factory immediately SW of this property occupied the rest of this front as far as Bull Lane. It is clearly shown by Ashmead (FIG 168) though not named; in 1883 (FIG 174) it was an oil and colour store. It is indicated but not identified in 1903 (FIG 175); by 1952 it was called simply a "factory" (FIG 165) and in 1963 was referred to as a warehouse (FIG 178). By 1969 the premises had been levelled (FIG 180).

On the opposite - SW - side of Bull Lane, Ashmead indicates a large building running all the way back from River St to the houses on Gt George St and occupying a considerable amount of the NE end of this block. In 1883 (FIG 174) this property is identified as an oil and colour works and was still in the same business 70 years later, the 1952 OS plan (FIG 176) noting it was a paint and varnish works. In 1963 (FIG 178) it was called non-commitally a "Works"; it had been demolished by 1969 (FIG 180). Between 1903 and 1952 the premises expanded back to Gt George St and may also have taken over the blue factory to the SW on River St (see below) - there is some uncertainty on this latter point for while the 1952 OS plan would indicate this, the larger 1963 OS plan suggests the two factories, while both expanded from their 1903 extent (FIG 175), had remained independent.

The site of the blue works is indicated by Ashmead as an irregular hollow structure, or series of contiguous structures, fronting River St immediately SW of the 1883 oil and colour works and backed by Grace's and Maye's Cts coming off Gt George St. Its use in 1828 is uncertain, though there is some indirect evidence involving pipemakers (see below) that it may have been a sugar factory; by 1883 as indicated above it was a blue works. Its use in the 1950s and 1960s is uncertain, for while the 1952 OS plan includes it under the paint and varnish works to its NE, the 1963 OS plan indicates two separate contiguous properties, that where the blue works had been being called a "Works" as was its neighbour to the NE (see above). In any event, the blue works property, like its paint and varnish works neighbour, had expanded after 1903, for before 1952 it had enclosed, possibly as a loading yard, the site of Grace's and Maye's Cts.

The possibility mentioned above that the blue works had been a sugar factory is based on a rather involved extrapolation from an obscure reference to a pipemaker sometime in the second half of the C19, but nevertheless seems plausible. Thomas George IV, the last Bristol pipemaker, made in 1952 and 1953 two lists of pipemakers based on his recollections and covering most of the second half of the C19 (see also Section VI above); and in one of these lists an E. Carey appears with the address given as Blue Factory, Gt George St (the other list has a David Cox at the same address). Carey is unknown from any other source, but could have been a member of a well-known Bristol pipemaking family of that name who flourished in the later C18 and earlier C19. One of this family, Israel Carey II (fl 1811-29), worked in the St Jude's area 1812-26; and a series of addresses for him in the trade directories between 1815 and 1822, though obscure, suggest he had property between River and Gt George Sts in the area of the later blue works. The entries are as follows:

1815, 1817:	Gt George St - Counter, 4 River St, Ropewalk
1818:	Sugar House, Gt George St - Counter, 4 River St, Ropewalk
1819:	Sugar House, Gt George St
1820-21:	Gt George St (Counting House, Sugar House)
1822:	Counting House, Sugar House, Gt George St

What "Counter" and "Counting House" refer to here is uncertain: the OED (vol II) gives as an obsolete meaning of the former "counting-house", noting 1809 as the latest recorded use of the word in that sense, and possibly it means here a sales office (cf Stiles 1970: 12 for a reference to a counting-house for the Old Market St sugar-refinery which was a sales office in central Bristol). If 4 River St was at the SW end of the street it must have been very near the 1883 blue works, and the association of the address with the "Ropewalk" tends to bear this out, for although the need to add yet another location in the address is not obvious, the reference must be to the area directly across the Frome from River St, where Millerd ca.1710 (FIG 173) and Rocque in 1742 (FIG 169) both note rope-walks. This area is not yet developed on Ashmead's 1828 plan (FIG 168), so may still have had a rope-walk although not marked as such; by 1883, when the area had been entirely housed, what is now the SW end of Wellington Rd (at that time the SW end of Skinner St - Wellington Rd then only came as far SW as Frome Bridge; see also 1903 OS plan - FIG 175) was called Rope Walk, suggesting the area may have remained a rope-walk until built over. In any event, the reference in Carey's addresses agrees with a factory near the SW end of River St. Taking the addresses at their face value, Israel Carey made pipes at a premises which included some sort of office and a sugar-factory. If E. Carey was a descendant and worked in the same premises then the blue works at which he is recorded is presumably the sugar-factory in 1818-22.

A "Sugar House" is recorded on Gt George St at least as early as 1812, when the Matthews's directory for that year notes a Thos Phillips and Co at that address; and the identification of there premises with the later blue factory is made almost certain by a firm of Mais and Thomas being noted in Matthews's 1803, 1805, and 1806 directories as "sugar refiners" on Gt George St, for the Mais of this firm must surely be connected with Mais Ct noted by Ashmead in 1828 which (as Maye's Ct) lay directly behind the blue factory in 1883 (see above). Despite the premises on both Ashmead's and the 1883 OS plan being definitely on River St - the latter plan clearly shows a vehicle entryway from the road across the pavement - the address of both Careys, Phillips and Co, and Mais and Thomas all indicate a connection with Gt George St; the only possibility from the very large scale 1883 plan is that there was an entry from Grace's Ct or - more likely as FIG 182 suggests Grace's Ct ended at least ca.1903 in a blank wall - Maye's Ct, both of which ran off Gt George St (see above).

As noted above, River St never extended NE of Wade St, Rocque in 1742 (FIG 169) and Donne in 1773 (FIG 170) indicating much of the area between Little George St and the Frome as open land. By 1828, however, Ashmead shows this area entirely built up, with a short cul-de-sac of houses continuing the line of River St and lying in front of a property of unspecified use, then a large turpentine works immediately NE of that extending as far as the line of Eugene St, and NE of that again with access from the junction of Eugene and Little Ann Sts a tanyard. By 1883 the property adjacent to the bridge was a tannery, the turpentine works was another oil and colour works, and the tanyard was still there. By 1952 the tannery at Frome Bridge had become a marble and mosaic works and the other tannery beyond Eugene St a mill (actually a sawmill); the oil and colour works was still in the same basic line it had been in since Ashmead's time, being now an oil and chemical works. (The tannery at Frome Bridge was still in operation at the beginning of the C20, for in 1903 the Corporation, having decided to build opposite the tannery the hostel at the corner of Wade and River Sts now the Salvation Army Hostel (FIGS 187-88), paid Thomas Griffiths the tannery owner £50 as recompence for any loss (not admitted) of light or air as a result of a higher building being erected opposite (BAO

113231(1) - one of the St Jude's property-deeds noted earlier). By 1963 the mill was still there, but the Frome Bridge tannery and the oil and chemical works had become "Depots", a term which on St Jude's maps tends to mean "dump". In 1971 there was a haulage contractor's business on part of the oil and chemical works site, the rest of the area being largely cleared (FIG 174, taken in 1969, shows the desolation viewed SW along Little George St with Wade St in the distance).

Apart from River St, large-scale industrialization has not appeared in St Jude's by the time of Ashmead's 1828 plan (FIG 168); the only other place where a large warehouse-like structure is indicated is the NE end of the block bounded by Eugene, Little Ann, and Wade Sts and Pennywell Lane (now Rd). No identification is given by Ashmead, but in 1883 (FIG 174) it is a malthouse and it is still this in 1952 (FIG 176) - in 1963 it was labelled "Works" (FIG 178). By 1883 there was a large lard refinery NE of Harris Ct on Lamb St but the essentially domestic layout of the St Jude's properties indicated by Ashmead and presumably dating from the initial development of the area a century earlier is still obvious, just as it is in 1903 (FIG 175). By 1952 the lard factory had become a warehouse and extended to cover Harris Ct and other properties; by 1962 it had been cleared and the site occupied by parts of Haviland House and John Cozens House, two of the multi-storey council flats in the area. The property now 14-15 Lawfords Gate (earlier 14-15 Gloucester Rd), which had first been leased in 1706/7 (BAO 24239(9)), included a hat factory established 1856 (loc. cit.) which subsequently became a jam, pickle, and vinegar factory - doubtless offering employment to the local Lizerunts - and continued in this line until at least 1952, when the OS plan of that year labels it a jam and pickle factory and shows it extending across the block to Little Ann St. By 1963 it is a warehouse and the property behind (on Little Ann St) a depot. Between 1903 and 1952 property immediately NE became a warehouse also extending across the block from Pennywell Rd to Little Ann St, and by 1963 the space on Little Ann St between these premises and the malthouse at the NE of the block noted above had also become a warehouse, making over half the block solid industrial property. This progressive industrialization of the area is very marked by 1952, when the OS plan of that date can be compared with the OS plan of 1903 and Ashmead's of 1828 both at the same scale; and it is emphasized, and no doubt also increased, by most of the domestic structures having been by that time swept away.

A study of a selection of the larger-scale plans showing the St Jude's area, therefore, suggests the area was developed from its beginnings in the first decade of the C18 as one for working-class housing: the convenience of an area contiguous to the city boundary but lying outside the city and its controls must have been obvious to enterprising craftsmen and tradesmen in the C18 impatient with the reactionary efforts of city guilds to control their occupations (see Section II(d) above), and this may well have been a reason for the original development of the area. Already by 1752, on the evidence of Rocque's plan of that year, high-density occupation in the form of lanes and cul-de-sacs within the major blocks was occurring at least in the part SW of Wade St and particularly in the Pinnel St area.[91] By 1828, on the evidence of Ashmead's plan, this feature was very marked, and by 1883, on the evidence of the very large scale OS plan of that date, occupation was approaching saturation point. (There are no figures available for the population of St Jude's, but census figures for the out-parish of St Philip and Jacob from 1801 onwards show a rise from 8,400 in 1801 to 50,000 in 1881, the population doubling between 1801 and 1831 and between 1831 and 1861 (Latimer 1887: passim).)

The lack of major industrial premises in the area in the C19 other than along River St and in the area between the Frome and Little George St would suggest the inhabitants either worked outside the area or were involved in domestic or semi-domestic industries within the community, and an examination of the trade directories for the years on either side of 1800 (the first directory appears in 1775 and they become regular from 1793 on) confirms the latter suggestion. A random list of trades appearing in St Jude's includes the following:

New St - pin-manufacturer, pumpmaker, carpenter, bellowsmaker, bookseller, sergemaker, butcher, baker, coffin-maker, excise-officer;
Lamb St - cooper, shoemaker, tiler and plasterer, confectioner, baker, clothmaker;
Gt Ann St - pawnbroker, maltster, shoemaker, patten-maker, mason, plaster-of-paris manufacturer, millwright, excise officer;
Gt George St - pawnbroker, tiler and plasterer, coach-plater, Bristol Subscription Brewery;
Wade St - hog-butcher, tailor, smith, brassfounder, rug-maker, painter;
Little Ann St - baker, currier, sergemaker;
Little George St - woollen-manufacturer, tobacconist, turpentine manufacturing company (noted 1805, prob. the "turpentine works" of Ashmead noted above);
Eugene St - hooper, tanner, undertaker, carpenter and joiner.

These occupations are typically those of poorer independent artisans and craftsmen who could do business from their home or backyard, plus provisioning trades typical of a populous community.

If any one industry was pre-eminent in St Jude's from before 1800 it appears to have been the leather trade; as noted above, there were tanneries in the area until at least the beginning of the C20. An anonymous publication of 1875 noted that "A hundred years ago Bristol leather was the best on the market" but that with the appearance of adulterated goods it declined; however, "within the past thirty years" standards had been raised and Bristol was now the largest leather producer in the country with quality as good as any (Anonymous 1875: 220; cf Latimer 1887: 309). St Jude's is not mentioned, but Sketchley's 1775 directory notes a tanner on Eugene St, indicating leather workers already in the area about the time the industry was at its height in Bristol. This is probably the tannery between Eugene St and the Frome which existed throughout the C19 (see above), and as neither Rocque in 1742 (FIG 169) nor Donne in 1773 (FIG 170) show any development in this area it appears tanners must have moved into at least this part of St Jude's only in the 1770s - indeed, the arrival of leatherworkers in St Jude's may have been associated with the decline in the industry from this period indicated above. Certainly by ca.1800 there were in St Jude's not only tanners but those in associated trades such as curriers, butchers, and glue-makers. By Ashmead's time, 1828, there was a tannery on the opposite side of Frome Bridge (FIG 168), on the SW side of Houlton St. As noted above, the SW side of Houlton St had been developed by 1742 (Rocque's plan) but neither Rocque nor Donne indicate an industry; Ashmead shows a different layout of buildings frome Donne. (By 1883 (FIG 174) the area was entirely housed as Frome St and part of Skinner St, a name probably connected with the leather trade and given to what is now Wellington Rd SW of Frome Bridge (see also FIG 175, the 1903 OS plan).)

Further evidence of the industry is the "Jolly Tanners", a tavern on Gt George St from at least 1794 until the 1910s, the "Jolly Skinners", a similar establishment on Wade St also in existence by 1794 and continuing until the early 1870s; and the names Skinner St, Tanners Lane (now Bull Lane), and probably Steer's Lane (now Eyer's Lane) and both the present and former Bull Lanes. The concentration of leather-workers in St Jude's was probably because it was a malodorous industry unsuitable for more central areas and it needed a convenient source of water which it had in the Frome. Campbell (1747: 216-7, 1969 ed), describing the tanning process, noted it "is generally performed in the Country" and observed that leather-dressing was "a nauseous dirty Business through all its Branches". Fishing, swimming, walking one's sweetheart along the banks, and the other pleasures of the Frome extolled by Millerd's dactylic hexameters must have disappeared very rapidly after the first tanner appeared on the scene.[92]

The inferior social position of St Jude's reinforced, one might almost say symbolized, by its having poorhouses at its SW and NE edges and a prison adjacent to the latter area. As early as 1696 the five central Bristol parishes had been ordered to give three months' contributions towards St Philip and Jacob's poor-rates because of poverty there (Latimer 1900: 486). In this same year the Society of Friends decided to establish a workhouse "for the Willing Friends to worke in & the Aged & Feeble to live in" which was opened in 1698, as noted above, on New St (Mortimer 1967: 18). Weavers in particular were in distress among the Friends, and this may have been a reason for the workhouse being built in St Jude's, for as mentioned earlier, Latimer (1893: 3) noted weavers among the inhabitants of the suburb beyond Lawford's Gate at the beginning of the C18. According to Mayo (1966: 110-3, cf 350), Bristol Friends gave money in 1688 to the Huguenot refugees newly settled in Bristol, about half of whom had settled outside Lawford's Gate. In October 1728 ca.500 weavers from beyond Lawford's Gate burnt 30 looms there and set off on an extensive and destructive tour of Chew Magna, Pensford, and Keynsham, destroying machinery and pulling down a house; and in the following September there was again loom-burning and rioting, with several deaths and an execution. There was continued loom- and cloth-burning, and executions, in subsequent years, the cause of unrest being apparently lowering of wages by employers at a time when weavers were already starving (Latimer 1893: 166-8; cf 81, 209, 236). By the end of the C18, however, directory entries suggest the cloth industry was no longer important in the eastern suburbs (cf Latimer 1893: 515). (George Berry apprenticed a pipemaker in 1740 is recorded as the son of weaver William Berry of the out-parish, while James Bond A 1734 was the son of dyer James Bond and Charles Bosher A 1763 was the son of tailor Leonard Bosher both of the out-parish and with trades related to the cloth industry. Edward Hunt A

1757 and the son of Edward Hunt a Bristol weaver probably also came from the out-parish, for when he was apprenticed his master received £5 from a donation for the poor of out-parish.)

The Friends' Workhouse functioned in its original capacity until ca.1721, though soon after its founding it was taking in boys who were schooled and apprenticed in the weaving trade to make the undertaking viable. Thereafter it became wholly a poorhouse and school for Friends' children (Latimer 1900: 485; Raistrick 1950: 85-7, 1968 ed; Mortimer 1967: 18 and 1971: xiv), though Ashmead in 1828 still labels it "Friends' Work House". It continued as a poorhouse until 1866 when it was adapted for mission-work in the area (Anonymous 1906 ed: 55). Subsequently it became a Board School (Anonymous 1885: 31); the 1883 OS plan (FIG 174) refers to it as a school for boys and infants. It is almost certainly this building which is illustrated in a booklet published ca.1930 by the Bristol Churches Tenements Association (Anonymous n.d.[26]: 8-9) with the headlines "NEW STREET, ST. JUDES, as it appears to-day before alteration" and "THE SCHEME for which we need £7,000 at once" (FIG 190): the scheme was the "extend and remodel...Buildings in New Street...to provide 23 tenement flats" (p.10) and the illustration is apparently that of the property to be converted. The building is not named, but an examination of the photograph suggests it must be the school, though the lamppost shown does not appear on the 1883 OS plan. If it is this building illustrated, presumably the conversion resulted in the present building on the site, known as the New St Flats. What is probably the workhouse - identified from its position vis-a-vis the bridge shown across the Frome which is presumably Quakers' Bridge noted above - appears on the ca.1710 edition of Millerd's plan (FIG 173) as a two-storey-and-an-attic structure with a wing extending SE from either end, but Rocque in 1742 (FIG 169) and Donne in 1773 (FIG 170) both show an H-shaped structure. Ashmead, however, depicts it in 1828 as a central block with two wings extending SE (FIG 168) - the same form as in Millerd's bird's-eye projection. Matthews (1794: 87-8) refers to it as "a handsome edifice". The 1883 and 1903 OS plans (FIGS 174 and 175) indicate the school building was a solid rectangle with an extension SE to New St; the 1952 and 1963 OS plans (FIGS 176 and 178) show the same shape but indicate the rectangle is hollow. Despite their name, the New St Flats have their main entrance on River St.

The other poorhouse was in Pennywell Lane immediately NE of Eugene St. It was built presumably soon after the site had been bought in November 1732 (I am very grateful to the Bristol Archives Office for this information). It is labelled "Poor House" by Rocque in 1742 and Donne in 1773; both depict it as a building with a main block parallel to the road and two short wings running at right angles from either end down to the road. Both plans clearly show it lay on the extreme edge of the built-up area and bordered open countryside throughout the C18; even by Ashmead's time, 1828, the area is by no means wholly built up, though occupation along Pennywell Lane has commenced. Ashmead's depiction of the building, which he labels "St Philip's Work House", does not indicate the wings running down to the road. Matthews in 1794 (pp87-8) described it as "a neat and spacious building" and in the 1819 (fifth) edition of his Guide (p.160) it was observed to be "replete with the poor of that populous parish". In 1835 an Assistant Poor Law Commissioner, noting the workhouse served a parish of nearly 17,000 inhabitants which spent £6,000 annually on poor support, denounced it as "a disgraceful instance of neglect and mismanagement". The building was "filthy in the extreme"; its inmates "dirty and wretched", with men, women, and children huddled indiscriminately together (Latimer 1887: 200 n.). Following the Poor Law Reform Act of 1834 St Philip's became part of the Clifton Union covering northern suburban Bristol and was used for able-bodied paupers. With the opening of a single new poorhouse at Stapleton in 1847 a vestry hall and parochial offices were built on part of the St Philip's site, the rest of which was sold (ibid. 279). In 1880 the present Vestry Hall was erected (FIGS 183, 178-79); from ca.1922 to ca.1957, despite its name, it was a cinema.

A prison to serve the Gloucestershire portion of St Philip and Jacob parish (the out-parish) existed by the first half of the C17, for in 1647 there is a reference to ground "near Lawford's Gate, behind the place where the Cage heretofore stood" (Latimer 1900: 217-8). There continued to be a "cage" near Lawford's Gate until the early C18, for in 1715 it was considered no longer adequate for the increased population of the out-parish and Kingswood, and arrangements were made to rent a small piece of ground in Well Close on which to erect a "Bridewell", which was built shortly afterwards (Latimer 1893: 112). Rocque's plan of 1742 shows it on the SE side of what is now the thoroughfare of Lawfords Gate (earlier Gloucester Rd) immediately NE of its junction with Brick St (FIG 165). In 1774 it was described by Howard as having a dark dungeon ca.12 ft by 7 ft in which those who could not afford to pay for a bed slept. Only the very poor were given a food-allowance, and that of only 2d a day. There were no chimneys and the prisoners never left their rooms (Latimer 1893: 407).

In 1785 another piece of ground in Well Close was given for a new country house of correction in return for the old Bridewell, and the new Bridewell, described in 1787 by Howard as designed by "the ingenious Mr. Blackburn", was opened in 1790 (Latimer 1893: 465-6). Matthews in 1793 (pp48-9) described it as a "spacious strong prison of stone on the Howardian plan" with a front of ca.150 ft and a 20-ft high surrounding wall. It had 70 separate cells, a chapel, and a hall for the justices at the front. A writer in 1826 was more terse and less complimentary, describing it as "a vile doghole, without light or air" (quoted in Latimer 1893: 466). Ashmead, who labels it "Gloucester Prison" in 1828 (FIG 168), shows it immediately NE of the Old Bridewell, which latter appears to have been removed and its site housed over by 1828. In 1831 the new building was stormed and burnt down during the Bristol riots (Latimer 1887: 161).

Rebuilt, it ceased to be a prison ca.1860, though the sessional court continued to meet there (Anonymous 1906 ed: 199). According to Latimer (1887: 509) there was a dispute from 1880 between Bristol and Gloucestershire authorities as to the future of the property which had apparently not been solved when Latimer was writing, though he opined that "its ultimate appropriation to recreative purposes is highly probable". However, it is still called Lawford's Gate House of Remand on the 1903 OS plan (FIG 175); in fact, it was not demolished until 1907 (Winstone 1960: fig 173). Wessex House, one of several Corporation multiple-dwelling units in the area, is on its site (FIG 166).

The religious history of the area is at present obscure. There appears to have been no Anglican church nearer than the parish church, St Philip and Jacob, inside the old city limits, until the erection and consecration 1829-32 of Holy Trinity (corner of present-day Trinity and Clarence Rds, at the west end of West St) after it had been noted 15,000 souls in the out-parish of St Philip and Jacob had no place of worship (Latimer 1887: 130) - the 1831 census in fact gave the population of the out-parish as 15,777 (Latimer 1887: 143). St Jude's, as noted above, was not built and consecrated until 1848-49, its parish being taken from that of Holy Trinity (Anonymous 1906 ed: 84; Latimer 1887: 304). (St Jude's Rectory was established in New St in 1898.) By 1883 there was a Church of England Mission Chapel with seats for 200 in Gt Ann St, on the SE side a few properties down from Wade St (FIG 174); the building was still there in 1952 (marked as "Hall" on OS plan of that year, FIG 176) but had been demolished by 1963 (FIG 178).

The Friends, as noted earlier, had their workhouse in the area by 1698 and apparently had a following among the poor weavers of the area as it was for them in particular that the workhouse was erected. In 1708 the Friends opened a burial ground immediately adjacent to the NE (Mortimer 1967: 15) which remained in use until at least 1883 (FIG 174); it was on this ground that the new Friars Meeting-House was erected after the old Friars property in central Bristol was sold to the Corporation in 1956 (Mortimer loc. cit.). There never appears, however, to have been any Friends' meeting-house in the area prior to this (cf Little 1954: 195-6, 1967 ed; Mortimer 1967: 14-15). Nevertheless, as noted earlier, their Poorhouse continued to serve the area until 1866 when it was adapted to mission work. It subsequently became a Board School (Anonymous 1884: 31), but the Friends' New St Mission, as will be noted in more detail later, opened a ragged school in 1868 and a British Workman in 1874 and was active in local social and religious work. Earlier, in 1865, a Friends' Mission had held a "Thieves' Tea" at Major Tireman's chapel (Unity Chapel) at the corner of Unity St and Midland Rd (in St Philip and Jacob In-parish, south of Old Market St) attended by between 300 and 400 thieves and their accomplices, the police having been persuaded not to enter Unity St until the affair was over (Anonymous 1884: 16). This participation by Bristol Friends in social work is interesting because in general Friends were regarded in the C19 as an exclusive group with few poor among them and little interest in missionizing (Inglis 1963: 13). (Unity Chapel belonged to the Christian Brethren; it became a warehouse ca.1960.)

The earliest reference to a place of worship in the St Jude's area appears to be the "Dissenting Chap. & Burying Ground" indicated by Donne in 1773 on the NE side of Eugene St, opposite the block bounded by Little Ann and Little George Sts. Which branch of nonconformity this represented is unfortunately not clear, for Donne specifically names an Independent, a Moravian, two Presbyterian, two Friends', and three Baptist meeting-houses as well as "Wesleys Room", Whitfield's [sic] tabernacle, and Lady Huntingdon's chapel, which appears to run the gamut of dissenting bodies. Donne also notes a "Dissenters Charity School" in Stoke's Croft which was the combined school and almshouse established by Lewin's Mead Presbyterian (by ca.1775 Unitarian) congregation (Latimer 1893: 134; Little 1954: 186, 1967 ed); the Eugene St chapel may therefore also have been Presbyterian. This writer initially thought the chapel might have been associated, in view of there being at least by 1828 (Ashmead's plan - see below) an adjacent Dolman's Ct with the burial-ground known as Dolman's Yard, with the John Dolman noted by Latimer (1893: 265) as a basketmaker, joint lessee from 1750 of the New Hot Well in the Avon Gorge, and "a preacher at two dissenting chapels". Dolman, however, describes himself on the title-page to his Contemplations amongst St Vincent's Rocks... (1755) as preacher to congregations in "George's-Street" and Guinea St; and if the former is Gt George St, St Jude's and not Gt George St, Park St the chapel in question would presumably be noted below as existing there at the end of the C18 and taken over by the Bristol City Mission in 1826, in which case Dolman's Yard may have been associated with that chapel and not the one on Eugene St adjacent to the graveyard (I am very grateful to Bristol City Libraries for the Dolman reference). Dolman had left Bristol by ca.1760; his religious persuasion is not recorded, but he was apparently sympathetic to John Wesley (Latimer loc. cit.); when he moved to London his congregation was Independent, later expanding to admit Calvinistic Baptists, but in 1765 he became an Anglican (Walter Wilson, The History and Antiquities of Dissenting Churches and Meeting Houses, in London....(1814) vol IV p.343; I am very grateful to Bristol Public Libraries for this reference). A study of the property-deeds for the Eugene St site would probably resolve matters.

Rocque's plan of 1742 indicates this part of the NE side of Eugene St was occupied by that date, for the plan shows a row of buildings, then a gap, then another row of buildings (FIG 169). Donne's plan is too small to show any detail, but it appears to show one block of buildings, the gap noted by Rocque, and then - towards the Little George St end - the chapel set slightly back from the road. The map in Matthews's 1793-94 directory shows the NE side of Eugene St in the same manner as does Donne, but it may well have used Donne as a base. However, it is worth noting that the Matthews's plan does not mark the set-back building as a chapel nor does it note a burial-ground there, though the "Dissenting School" in Stoke's Croft is duly noted: this might suggest the omission of identity for the Eugene St building indicated it had ceased to be a chapel by 1794.

By 1828, Ashmead shows the two rows of buildings, complete with back-gardens, and the gap between them is now a court named Dolman's Ct (FIG 168). There is a graveyard immediately behind the court and the Eugene St buildings which Ashmead calls Dolman's Yard. To its SE it adjoins the poorhouse on Pennywell Lane noted above, to its NW the tanyard noted earlier and open fields, and to its NE is also almost uninterrupted open fields. There is no evidence for any building set back as Donne suggests, nor is any place of worship indicated.

According to Latimer (1893: 355) a private cemetery, the Universal Burial Ground, was opened ca.1762 behind Eugene St because of the increasing population of St Philip and Jacob Out-parish, and charged 4s an interment. This must be Dolman's Yard of 1828, but it must also be the burial-ground of the "Dissenting Chapel" on that spot by 1773 and it is strange this latter affiliation seems otherwise unrecorded. By the beginning of the C19 there were at least four private burial grounds in St Philip and Jacob parish where, according to its vicar, "people bury without ceremony or register": three of these had been opened within the preceding 30 years (Little 1954: 327, 1967 ed).

By 1883 Dolman's Ct had become Allen Ct and the burial-ground was an open yard of unspecified use with considerable building surrounding it. Access to this area was by the large but unnamed court running off Eugene St SE of Allen Ct (FIG 185); Ashmead's plan is ambiguous on this point, but suggests access to the graveyard in 1828 was also by this court. The 1903 OS plan (FIG 175) shows the same layout; by 1952, however, the area had become industrialized, with a refinery occupying most of the Eugene St front and using the erstwhile Allen Ct as its entrance. The 1963 OS plan (FIG 178), at a larger scale than the preceding, identifies a "Works" along the NW side of the unnamed court and another, smaller,"Works" where the entrance to the graveyard appears to have been. These buildings, or parts of them, together with much of the refinery, occupy the burial-ground site. Immediately beyond the end of the unnamed court lies an engineering works which has encroached on a large part of this area; the apparent presence of older houses within this complex (see roofs and chimneys in FIG 185 background) suggest some clues of earlier occupation may yet survive.

Matthews in 1794 (p.80) notes a chapel in "George's St beyond Lawfords-place" which was apparently Wesleyan with an Anglican form of service - it was compared to the Portland St chapel, where the service was "of the Church of England read by preachers of Mr. Wesley's connection"; the latter chapel had been opened in 1792 (Latimer 1893: 498). In the plan accompanying Matthews's 1793-94 directory the chapel is shown on the SE side of Gt George St between New St and Eyer's Lane, opposite Grace's Ct; it may be that referred to by John Dolman in 1755 as one where he preached (p.714 above). By the 1819 edition, Matthews's guide, though still based closely on that of 1794, had omitted this reference from its list of places of worship (pp144-5); but the building must have still been there, for when the Bristol City Mission was formed in 1826 it was reported by W.D. Wills (of the tobacco firm) that he had "engaged the chapel in Great George St at the rent of eight pounds per annum to be paid quarterly" for the mission's work (D.W. Edwards 1927: 13), and this is presumably the chapel referred to above[93] (the Wills family were very active in religious and philanthropic work; both W.D. Wills and his brother H.O. Wills II were strong Congregationalists and founders and officers of several Bristol chapels (Alford 1973: 98-9)). If the Bristol City Mission's obtaining this chapel indicates the Methodists had abandoned using it by 1819, which seems likely, and if the "Dissenting Chapel" in Eugene St had also ceased to function between 1773 and 1828, as also seems likely, this gives some idea of the religious poverty of St Jude's - the area indeed may have had no places of worship at all in the early C19. (There had been considerable Methodist preaching in St Philip and Jacob Out-parish and Kingswood, starting with Whitefield in 1737 and John Wesley in 1739 (Latimer 1893: 200-5, 272-3, 306-7; Little 1954: 196-200, 1967 ed). It would be surprising if there had not been Methodist groups in the St Jude's area; Wesley preached at Baptist Mills, ca.1/2 a mile up the Frome, in 1739; and there was a "society" in Gloucester Lane, running from Lamb St to West St, by that date (Latimer 1893: 203).)

The Bristol City Mission, as noted above, was formed in 1826. Its claim to be the oldest city mission in the country (D.W. Edwards 1927: 12) may well be correct - certainly the London City Mission was not founded until 1835 (Inglis 1963: 305). Its aim was "the diffusion of evangelical religion through the city and its immediate vicinity, by opening houses for reading the scriptures, prayer and occasional preaching" (D.W. Edwards 1927: 18). In view of the fact that even the Salvation Army had not reached the lowest classes and many of its converts were from various Dissenting bodies (Inglis 1963: chapt 5 passim; cf J. Kent 1973: 866-7), it is of interest to note that the BCM claimed never to steal a sheep or a lamb but to go into the wild to bring in the stray and the lost (D.W. Edwards loc. cit.); elsewhere, one of their two stations in Gt Ann St was referred to as being "in the midst of the very population the Bristol City Mission delights to serve" (D.W. Edwards 1927: 20). As the BCM appears to have laboured devotedly and long in St Jude's in the C19 - when it was probably the worst slum in the city - a study of its methods along the lines of Inglis's work might prove interesting; Minute Books for the Mission exist from 1826, though lack of time prevented this writer from examining them. As noted above, the Mission was avowedly evangelical, and of a vigorously fundamentalist persuasion. One of the Mission's most famous evangelists was John Cozens - after whom the Corportion, with rare historical sensitivity, have named John Cozens House, one of their recent multi-storey flats on Lamb St replacing part of the slums in which he worked (FIG 166) - "a man of God, whose heart was aglow with love for his Master and a burning desire for the salvation of man"[94] (Edwards 16); and while the Mission wrestled with the problem of whether drink caused poverty or poverty caused drink their approach appears to have been the "midnight sweep" of the public houses and streets, after one of which "forty-seven pledges were taken and several professed decision for Christ" (Edwards 26).

The Mission had two stations in St Jude's, both on Gt Ann St, one known as East, the other as West. There was a morning service and afternoon Sunday school and bible classes on Sundays, and evening services were conducted both in the stations and in the lodging houses. FIG 192 (taken from Edwards 1927) shows one of the BCM's lodging-house services and probably dates to not long before 1927. Edwards apologizes for the unwonted "Sunday best" clothes of the men, noting they had dressed thus in anticipation of being photographed (cf Inglis 1963: 116). Gt Ann St East held various evening classes Monday to Thursday, and Gt Ann St West had Monday and Friday evening activities and Tuesday and Wednesday afternoon activities. Both stations visited lodging-houses on weekday mornings and the West, where Cozens worked, specialized in services in the lodging-houses, ministering to 12 of them (Edwards 6-7, 21).

Unfortunately, neither mission station is identified on the 1883 OS plan (FIG 174) - confusingly there was an Anglican mission chapel, as noted earlier, on the SE side of Gt Ann St near Wade St which is marked - but by coincidence one of the stations was set up in 1875 in the property (then number 5, later 51) vacated two years earlier by the George pipemaking family when they moved to Gt George St (BAO 13480(26)). FIG 193 (copied from Edwards 1927) shows - top - a large group of children outside one of the Gt Ann St stations (the caption does not identify the view, but parts of

ANN [sic] STREET ST JUDE'S is visible on the two posters in the background); unfortunately virtually nothing of the building shows. The BCM still serves the area today, having erected in 1955 a new building at the north corner of Gt George and New Sts (see FIG 178).

If religion was under-represented in St Jude's, other forms of relief from the miseries of slum life were not. With the commencement in 1700 of the building of Queen Sq, Bristolians lost a recreation area which included their bull-baiting ring (Latimer 1900: 490-1; 1893: 25, 42-3, 45), and as a result the ring was transferred to Pointz Pool (Latimer 1900: 485-6). It remained in use there apparently as late as 1822 and was apparently the last bullring in the city, though at least as late as 1816 there was bullbaiting on Clifton Down (Anonymous 1906 ed: 34; Latimer 1887: 68); St Jude's church was built on the site of the Pointz Pool ring in 1848-49 (Anonymous 1906 ed: 84). Bullbaiting was a popular sport into the C19, for in 1802 the Commons rejected a bill to abolish it and two years later the rector of St John's in Bristol, who was also the City Librarian, presented a paper maintaining that bullbaiting "was not only legal but exceedingly correct and useful to society" (quoted in Latimer loc. cit.). Bullbaiting was made illegal in 1835 (Marshall and Leys 1958: 140, 1963 ed), though as Latimer notes, it still occurred in the South-West at later dates. The area outside Lawford's Gate was known for its "bull paunchers" - bullbaiters - and the lane now replaced by Lawford St is called Bull Paunch Lane by Rocque in 1742 (FIG 169) and by Ashmead in 1826 (FIG 168) (Donne in 1773 (FIG 170) calls it Bull Lane).

Up to 1728 there was also a New Year's Day fair held at Pointz Pool, but in that year it was transferred to nearby West St, also just outside the city limits, where it continued throughout the Georgian era, often with great disorder according to Latimer (1893: 166). A correspondent in the later C19 recalled it being held from Bull Paunch Lane to Gloucester Lane in the early C19 (Latimer 1887: 98). The same correspondent also recalled (pp97-8) the Boxing Day fair held in Wade St and known as the "horn fair", the name coming from grotesque gingerbread figures anything from a few inches to a yard long known as "the horn" and representing a man's head and shoulders with two trumpets branching out from his back. "Gilt horns", it was noted, "were everywhere by hundreds" - unfortunately it is not clear to what precisely this refers, whether to musical instruments or some sort of souvenir produced for the occasion. The gingerbread "horn" ritual associated with the fair is extremely interesting; possibly a folklorist could give more details of its origin, for it would appear to be the remnant of something of considerable antiquity. Stalls were set up along the sides of the street and the event was wild, noisy, and notable for petty gambling, according to the correspondent.

Such fairs, apart from their economic importance, were equally important to the cultural life of the poor. As E.P. Thompson notes, (1963: 444, 1968 ed), the working man's year in the early days of the Industrial Revolution "was made up of cycles of hardship and short commons, punctuated with 'feast' days when drink and meat were more plentiful, luxuries like oranges and ribbons were bought for the children, dancing, courtship, convivial visiting and sports took place"; and until late in the C19 a network of fairs existed throughout the country, attended by pedlars, cardsharpers, real or pretended gipsies, balladmongers, and hawkers. In 1838, the St James's Churchyard fair in Bristol, an important annual gathering since at least the early C17, was abolished, ending, as Latimer (1887: 243) put it, "saturnalia of which but a faint conception can be formed in our times". Latterly the fair's importance as a place for business rapidly decreased while shows, entertainments, and general disorder increased; but vested interests for long resisted its closure - as late as 1813 an offer of £3,000 compensation to the vestry for loss of tolls on closure of the fair was rejected as insufficient. Down to the end of the first quarter of the C19 the fair sold Yorkshire blankets and woollens, Macclesfield silks, Belfast and Lancashire linens, Kidderminster carpets, Sheffield cutlery, Walsall and Wolverhampton hardware, pottery from Staffordshire and elsewhere, cotton stockings from Tewkesbury, Buckinghamshire and Devon lace, Birmingham and London trinkets, Coventry ribbons and many other items from other areas as well as equally-large contribution from local industries. In addition, there were travelling exhibitions and entertainments - menageries, circuses, theatres, puppet shows, waxworks, flying coaches, rope-dancers, acrobats, conjurers, pig-faced ladies, living skeletons, and mummers - and the inevitable pickpockets, thieves, thimbleriggers, and swindlers. Stalls and stands took a month to build, and the fair was visited by everyone in the surrounding districts from the Duke of Beaufort's family to the children of the Kingswood colliers (Latimer 1887: 244-5). The West St and Wade St fairs must undoubtedly have been very similar. A vivid picture of the C19 migratory classes and their rounds of wakes and fairs is given by Samuel 1973: *passim*).

Above all, however, there was the release of the public house. As early as 1801 there were 14 within the narrow confines of St Jude's, and in the later third of the century there were 16. Even today there are 4 - the "Swan" (FIG 194) and "The Volunteer" (FIG 195) in New St, the "Sportsman's Arms" (FIG 196) in Wade St, and the "Swan with Two Necks" (FIG 197) in Little Ann St.

The 14 recorded in 1801 were distributed as follows:

Lamb St	Bell
New St	Swan, Dolphin
Gt Ann St	Three Tuns, Duke of Devonshire, Marquis of Granby
Gt George St	Jolly Tanners, Anchor (*later* Crown and Anchor), George
Wade St	Jolly Skinners, Harp and Crown, ship
Little Ann St	Swan (*later* Swan with two Necks)
Eugene St	Wool Pack

All of these in fact are in existence by the 1790s on directory evidence, and the "Swan" in New St is noted in 1787 and the "Dolphin" and the "Wool Pack" in 1775. Patchy directory entries make tracing difficult, particularly as early directories were not representative, had no listings by street, and entered public houses under the landlord's name not the name of the pub. An examination of the property-deeds would undoubtedly give accurate accounts of public houses in the area; the first Bristol directory, Sketchley's of 1775, notes a "Rising Sun" and a "Pigeon" on Wade St, for example, which had either closed before the end of the century or had changed their names, and also lists a "St George and Dragon" on Gt George St which could either be the "George" recorded from 1797 or an entirely different establishment (a "George and Dragon" is noted on Gt George St in 1794 and 1795). Wade St, to judge by directory entries, was the street of the publicans in the later C19, with Gt Ann, Gt George, and New Sts fulfilling that function in the earlier part of the century.

The area delimited in FIG 167 as St Jude's is - approximately - 18 acres, so that pub density in the later C19 was about one per 1.1 acres. Harrison, discussing density of pubs in various areas of London (B. Harrison 1973: 163), shows that in St James's in 1896 there was a pub for every 0.7 acre, in the City one for every 1.0 acre, and in the Strand one for every 2.0 acres. As Harrison notes, there are unfortunately no figures for pub density for areas within provincial towns, so it is impossible to say whether the St James's figure is a record for the country as a whole, but certainly it represents a far greater concentration than any figure for complete towns at this time. It is thus clear that the figure for St Jude's is among the very highest, and it should be remembered that the St Jude's pubs were all except two concentrated in the SE two-thirds of the area (i.e. on or SE of Wade St) so that the density within that part was more like one to 0.9 acre.

As noted earlier, the "Jolly Tanners" and "Jolly Skinners" indicate the area's leather trade. The "Wool Pack" may well refer to the weaving trade for which the suburb beyond Lawford's Gate was known in the earlier C18, though this trade had apparently died by the end of the century - the remains of this inn, showing a black and red tile front presumably of Victorian taste, still (1971) stand (FIG 185) - while the "Painters Arms", a public house of rather short life in the second half of the C19 on Wade St, no doubt alludes to the paint, colour, turpentine, and varnish industries noted earlier as being in the area in the C19.[95] The "Marquis of Granby", which continued into the early 1930s, may have dated from the 1760s, for the Marquis was a popular commander during the Seven Years' War, 1756-63, and the inn must have been named after him (cf Heal 1947: 10) (according to Little (1954: 231, 1967 ed) the Marquis subscribed - modestly - in 1744 to the Dowry Chapel at Hotwells, but whether he actually visited Bristol is not noted; the occasion for naming the inn, however, is much more likely to have been the Seven Years' War).[96]

Of the four taverns which remain, the "Swan" and the "Swan with Two Necks" go back to the C18, though their appearance has been heavily altered and their age - if indeed any appreciable amount of the C18 fabric survives - is not apparent. The chimney-pots on the former are of a common fin-de-siècle style; the heavy pebble stucco front for the upper two storeys of the latter looks more recent. The landlady of the "Swan with Two Necks" when asked about the age of the establishment said that the London stage-coaches used to leave from there. This can certainly never have been the case, but Latimer (1893: 269) noted that the landlord of the "Lamb" on West St was the local agent for a coach and waggon service to London advertised in 1747 - 6 days for passengers, 12-14 for freight which was taken to Newbury for barge transportation - and possibly this memory has somehow been transferred to the "Swan with Two Necks". (A little later, in 1760-61, there were celebrated poltergeist manifestations at the "Lamb"

(Latimer 1893: 348-50); regretably, this writer did not think to ask whether that story too had been transferred.) The shells of two or more taverns of C18 foundation still survive - the "Wool Pack" in Eugene St (FIG 185) and the "Ship" in Wade St (adjacent to the "Sportsman's Arms" (FIG 196)). The "Dolphin" in New St at the corner with Lamb St, which was also of C18 origin, continued into the later 1960s.

The "Sportsman's Arms" dates from the end of the C19, to which period its green-glaze tile front probably belongs - advantage was taken, presumably when it was erected, to set it farther back from the road and to set the pavement back with it, perhaps as part of a piecemeal plan of road widening (cf FIGS 178 and 196 with the 1883 OS plan - FIG 174 - which indicates a building here on the same line as the rest of the street front). The "Volunteer" is also a relatively recent public house, having been established in the 1850s, but as the only pre-clearance building now on New St it is probably typical of the street fronts of this part 100 and more years ago.

Young and Willmott point out (1957: 153, 142, 121, 1962 ed) that in Bethnal Green - where there is a tavern for every 400 people - pubs are important as neighbourhood centres, something planners of new model housing estates in Essex for Bethnal Green residents did not realize. Harrison, examining Victorian pubs, has emphasized the pub's three major roles in C19 society as transport centre, recreation centre, and meeting-place (B. Harrison 1973). The St Jude's pubs can never have been transport centres in the sense coaching-inns were, the landlady's story about the "Swan with Two Necks" not withstanding, and as noted above it was not until the later C19 that Wade St, the only thoroughfare of the area, predominated in its number of taverns. It is not known what part the St Jude's pubs played as public meeting-places, though in all probability they did fulfil this function at least at a local level, for in St Jude's in particular there could have been few other places available for public meetings. As Harrison notes, moreover (1973: 176), there were pubs for all classes, "medical students, prostitutes, servicemen, sportsmen, actors, foreigners, and lawyers" (as of course there still are today); and the "Jolly Tanners", "Jolly Skinners", "Wool Pack", and "Painters Arms" in St Jude's not only show in their names the occupations of the area, as noted above, but would also have been the places where those in the respective trades would have tended to gather. Marshall, examining the growth of C19 Barrow-in-Furness, makes the same point, noting that the pub was where the workmen's trade union lodges and friendly societies - unless they were avowedly teetotal - held their meetings (J.D. Marshall 1958: 327). In the northern Kensington Potteries in the middle of the C19 leisure activities centred round the public house, which was warm, dry, relatively spacious and airy compared to most of the homes of the clientele, and offered congenial company. Publicans organized sparring and boxing matches, rat-killing, and cock-fighting, on whose outcome bets were placed, and bull-baiting and dog-fighting were other entertainments; though by the end of the century, while betting and gambling were still in evidence, the blood-sports had apparently died out (Malcolmson 1970: 72-4). As noted above, the C18 "Pigeon" in St Jude's may have referred to pigeon-fancying as a local pastime; certainly the "Sportsman's Arms" must have originally aimed for a sporting clientele. The "Volunteer" presumably had a military or patriotic flavour about it originally; perhaps, in view of its being established in the 1850s, connected with the Crimean War. All this, of course, is closely allied to the third of Harrison's roles, that of recreation centre; and here the St Jude's establishments must have played a vital part - their concentration in Gt George, Gt Ann, and New Sts, the part of the area with the densest population (see pp699-704 above) is a proof of this.[97]

Anyone wondering how several pubs can flourish in one small street need only visit the "Swan", with its dining-parlour and eminently respectable lunch-hour clientele; and then the "Volunteer" with its spartan, scrubbed-board interior and 10-till-2 6-till-10 elderly regulars probably from Redwood House, the Salvation Army hostel at the corner of River and Wade Sts, to see the social difference between two inns a stone's-throw apart. It would have been interesting to compare both with the "Dolphin", only another stone's throw away from the "Swan"; certainly, while the difference between the "Swan" and the "Volunteer" is extreme, the "Sportsman's Arms" and the "Swan with Two Necks" also presented differences, albeit more subtle, of ownership and customer.

Further, despite the concentration of public houses in St Jude's, the trade of publican appears to have been prosperous enough, to judge by the longevity of most of the establishments. Indeed, Latimer noted that in Bristol at the beginning of the C19 "in spite of the multitudinous public-houses few trades were so prosperous as that of the innkeeper" (Latimer 1887: 4). Pubs and beerhouses abounded in the Nichol in Bethnal Green (T.H. Smith 1959: 41), and that area must have been one of the worst slums in all of East London, while at the end of the C19 five streets in an area immediately adjacent to the Potteries in northern Kensington had ten pubs, a concentration which represented approximately one pub to every 28 dwellings (Malcolmson 1970: 74). E.P. Thompson notes that in city slums publicans and small shopkeepers were among those often cited as owners of the worst properties (1963: 353, 1968 ed), and this type of situation may very well have held in St Jude's with its concentration of publicans and small independent tradesmen, though only a study of the area's property-deeds would confirm it; certainly, as noted in Section VI above, the last Thomas George pipemaker was landlord of some of the dwellings in the area. Publicans were also often employment-brokers, particularly in dock areas[98] - for example, until 1843 London coal-whippers could only obtain employment through publicans, who in turn would only employ men who spent up to 50% of their wages in the public house (E.P. Thompson 1963: 270, 1968 ed); and Malcolmson records a rather similar instance in the Potteries where a master bricklayer who was also a publican paid his men only at the pub and encouraged them to drink liberally against the credit of their wages (Malcolmson 1970: 73).

Unfortunately, little now remains of pre-clearance dwellings in the area apart from the public houses. FIGS 186 and 198-204 show those which are at present (1971) standing: FIG 186 shows a house in the unnamed alley off Eugene St behind Vestry Hall, numbered 1a Eugene St (see FIG 178); FIG 198 is a two-storey brick building with stone door- and window-surrounds at

15 Eugene St, at the corner with Little George St; FIG 199 is 46 Wade St, on the NE side between Lamb St and Gt Ann St; FIG 200 is 8 Wade St, latterly Bassett's newsagents but earlier the "Duke of York", a second half of the C19-earlier C20 tavern, on the NE side between Gt George St and River St, with the Victorian Gothic remains of St Jude's School, latterly a hall, to the left; FIG 201 is 17 Wade St, almost opposite the preceding illustration, a butcher's shop which actually reopened in 1969 but was once more closed in 1971; and FIGS 202-203 show the remains of Pratten's Ct, on Little Ann St between the "Swan with Two Necks" and Wade St - as can be seen it is now a tyre dump, but the outlines of plaster on the NE wall show the room size of the dwellings filling this court.

The dates of these structures, as with those of the older public houses, is uncertain, but those illustrations showing ruined walls suggest these structures to have been basically of stone, which might suggest a relatively early date. Considering the class of the area, it would be somewhat surprising if many of the earlier C18 domestic buildings were rebuilt in their subsequent lifetime other than those with a business occupation (e.g. the pubs) or any which collapsed. Several of the buildings, moreover - e.g. FIGS 186, 198, 201, and the "Ship" in FIG 196 - have pseudo-capitals to their door surrounds which are rather similar to those on doorways in Pipe Lane at Temple Meads Station (FIG 204) which Pevsner (1958: 429) dates to the late C18.[99] The surviving structures certainly appear to be pre-Victorian in style, if one takes St Philip's Marsh[100] working-class brick row-housing as typical of Victorian Bristol's dwellings for that class, for example.

Illustrations of any kind of the St Jude's area are unfortunately rare, and photographs are almost non-existent. The earliest illustrations of the area known to this writer are two pen and ink and watercolour drawings (FIGS 183 and 184) of the two bridges across the Frome, Traitor's or Frome Bridge and Quaker's Bridge, both by H. O'Neill and dated 1821, and both in the Braikenridge Collection in Bristol City Museum and Art Gallery; but their catalogue descriptions there are confused (I am grateful to F.W. Greenacre, Curator, Department of Fine Art, Bristol City Museum and Art Gallery *in litt.* 18 April 1973 for these entries). As noted earlier (p701 n. 89), FIG 183 is catalogued "Traitors Bridge at the end of the Rope Walk rebuilt with improvements in 1798", which seems straightforward enough; while FIG 184 is catalogued "Frome Bridge the first bridge above Traitors Bridge at Earls Mead", an identification which raises several problems. However, a close comparison of the drawings with Ashmead's detailed plan of seven years later (FIG 168) suggests that FIG 183 is in fact a view, looking south, of Quaker's Bridge (which *was* also known by the mid-C19 as Traitor's Bridge), with the houses of River Ct on the left; while FIG 184 is a view, looking NE, of Frome Bridge (the original Traitor's Bridge), with the junction of Wade and River Sts on the right and a house fronting Houlton St on the extreme left. The former identification is based on the polygonal building visible in the centre middleground of the illustration, which can plausibly be equated with the similarly-shaped structure shown by Ashmead behind River Ct; while in FIG 184 the buildings on the extreme left can be equated with those shown by Ashmead on the NW bank of the Frome where Houlton St joins Frome or Traitor's Bridge - there are no buildings shown by

Ashmead at the NW end of Quaker's Bridge, but the view has to be looking approximately north because of the high ground visible in the far distance - while the buildings on the right can be equated with the short cul-de-sac continuing the line of River St NE of Wade St shown by Ashmead and still in existence in 1903 (FIG 175). Unfortunately, neither drawing shows much of the St Jude's area, though both River Ct and the River St-Wade St corner show three-storey housing. It is doubtful, however, that the areas depicted looked as pleasant and silvan as they appear here.

The only other drawings of the area known to this writer are a series made in 1905 of the newly-opened municipal common lodging-house at the corner of River and Wade Sts and now the Salvation Army's Redwood House, which are described below when discussing the St Jude's lodging-houses below (p. 754), and a drawing of the entrance to Pinnel St from Pointz Pool dated 1907 and described earlier (pp699-700). Regarding photographs, the extensive series of albums filled with views of Bristol going back to the late 1830s published by Reece Winstone contain none of the area (inquiries to Winstone as to whether any were available in his collections brought no reply). However, as noted earlier, a photograph of Grace's Ct off Gt George St (FIG 182) appeared in a 1903 article, and the same article has two pictures of Gt George St (Anonymous 1903: 448, 450) - one a general view along it. The general view (FIG 205) shows a side of monotonously similar three-storey dwellings and a cobbled street and flagged pavement; the other view (FIG 206) shows a bay ground-floor window and a doorway, and again the cobbled street. (Cobbled streets and pavements "pitched...with stones of a description that would furnish formidable ammunition to defenders of a barricade" were noted in 1850 (anonymous correspondent to the Examiner 24 August 1850); the 1903 pictures, including that of Grace's Ct (FIG 182), indicate some pavements had flagstones by that date, but cobbled pavements still exist in the unnamed alley off Eugene St (FIGS 185-86) and cobbled road surfaces still exist there and at least in parts of other road surfaces (FIGS 180, 185, 197-98), sometimes covered by a layer of partly worn-off tar.) Again as noted earlier, the presumably C19 building on the site of the Friends' poorhouse which the 1883 OS plan indicates was a school at that time, is probably the building illustrated in FIG 190 (undated but probably ca.1930). The picture showing children outside one of the Gt Ann St BCM stations (FIG 193, top) has also been noted above, and the same illustration shows two other views presumably of the St Jude's area. Neither is identified, but a careful examination of the bottom picture suggests it may be Allen Ct (earlier Dolman Ct) off Eugene St. The centre illustration appears to be of another of the many courts of the area, but no identification can be hazarded. No dates are available for the taking of these three photographs, but there is no reason to believe they antedate their date of publication, 1927, by much, particularly as it was not until the early 1930s that a start was made on systematically clearing and redeveloping the area. To this early period of clearance and redevelopment must belong FIG 208, a photograph in Bristol City Museum's collections looking NE along Gt George St, with Wade St just visible crossing in the middle distance. That redevelopment has started is indicated by the building just visible on the extreme left, set back from the road: this is Whitson House (cf FIG 181), the earliest multiple-dwelling unit built in this area by the Corporation. The buildings on the right, however, illustrate vividly what the area was like prior to redevelopment. The street, as in previous illustrations, is cobbled; and the dilapidated front nearest the viewer on the right (the number visible is 40-something - it has to be an even number) shows the same sort of pseudo-capital door surrounds noted above occuring elsewhere in the area, and also carved window-lintels on the ground floor. (The picture is undated, but internal evidence puts it to between late 1937 and mid-1940 or perhaps late 1939: Whitson House provides a terminus post quem, for its building commenced in April 1937 and its first floor was ready for occupancy in November of that year; and a terminus ante quem of at latest mid-1940 and in all probability somewhat earlier is provided by the fact that the SE side of Gt George St is still entirely unaltered whereas in mid-1940 Elton House, another Corporation multiple-dwelling unit, was completed at the south corner of Gt George and Wade Sts, with the front on Gt George St stretching as far SW as opposite Whitson House. I am very grateful to the City Housing Department, Bristol, for the construction dates of Whitson and Elton Houses (in litt. 5 July 1974).)

It would be difficult to hazard a guess at the ages of the buildings shown in these older illustrations, but the regularity of appearance noted above in describing FIG 190 is confirmed by the accompanying text, which refers to Gt George St as "lined with grimy, stucco-fronted houses, the monotony of the perspective broken only by a single modern red-brick dwelling which stands as a splash of colour intensifying the blackness of its neighbours" (Anonymous 1903: 448); and also by the reminiscences of a granddaughter of Thomas George III (D 1935) who recalled the buildings at the time her grandfather lived on Gt George St. This regularity suggests a coherent planning, and possibly many of the buildings dated back to the C18 and were in fact the original structures erected after Wade let out the area.

An anonymous correspondent in 1850, commenting about St Philip and Jacob Out-parish in general, observed:

> As for the houses, they present every appearance of having been built not only for the poor, but by the poor, and to have known no other tenants. The greater number are mere shells, the walls often apparently, only one brick thick, and very many of them have become so utterly ruinous as, even here, to be deserted and shut up; while from holes, once containing windows, in the tottering walls of others, almost equally dilapidated, the occasional protrusion of a head gives token they are not yet left without inhabitants (letter to the Examiner, 24 August 1850).

This is, of course, a generalized statement and the reporter was ranging over a somewhat wider area than St Jude's as defined here, including the West St-Bragg's Lane-Bull Paunch Lane-Gloucester Lane-Brick St area directly south of Lamb St, for in a subsequent letter (31 August) he says St Jude's church was in the very centre of the area described; he also specifically contrasts this appearance with that of the in-parish which though now slum still retained vestiges of a more affluent occupation in earlier times. His description, however, agrees with other evidence that the area outside

Lawford's Gate was from the first one with a poor, high-density population and housing to match. In at least one lane of the area the building had projecting second storeys (24 August letter), suggesting structures of some age.

It is against this background that the pipemaking industry in St Jude's in the early C19 must be set. As noted in Section VI above, with the exception of William Showell who is noted in Houlton St across the Frome from St Jude's in 1775 and Robert Carter F 1767 who voted from St Philip and Jacob Out-parish in 1784 after having been recorded within the city at the 1774 and 1781 elections, the first pipemaker in the eastern suburbs beyond the city boundary was Nicholas Kennicott, who became free 1809 and first appears in the trade directory for 1810, in Lamb St. In 1815 no fewer than 7 of the 13 directory-listed pipemakers are in St Jude's - two each in Lamb, Gt Ann, and Gt George Sts, and one in New St. This sort of proportion - half to four-fifths - continues until the industry collapses in the 1860s. In 1850, for example - during the period when the highest number of C19 makers was recorded - 17 of the 23 makers listed in Matthews's directory lived in St Jude's: five on Gt Ann St, four each on Gt George and New Sts, two on Wade St, and one each on Lamb and Little Ann Sts. The appearance of pipemaking in St Jude's in the 1810s therefore occurs in an area already crowded, with housing already the better part of a century old and showing evidence of slum development, and with a working-class tradition of small independent enterprises and a scattering of larger industries often of a noisome nature such as tanning, gluemaking, and brewing. An abundance of public houses, a possibly complete lack of churches, and two poorhouses and a prison bordering the area all reinforce the impression of the area being socially depressed.

An important question in the revival of the Bristol pipemaking industry in the early C19 is whether it is a case of pipemakers moving into St Jude's or whether the industry restarted there because it was a trade typical of those small independent cafts of which the area was already full before ca.1800 on trade directory evidence. There is in fact evidence for both causes, but unfortunately directory entries do not allow, save for rare and generally uncertain cases, the tracing back of pipemaking families prior to their first appearance in that trade. Directories list only independent tradesmen and the like; a pipemaker initially working as a journeyman for a firm and then setting up in business for himself would not be listed prior to becoming independent. The best hope here lies in the property-deeds.

As noted in Section VI above, the revival of Bristol pipemaking in the early C19 appears to owe relatively little to the C18 traditions of the industry. Apprenticeship and freedom as means of training for and entering into business were almost dead and many of those noted becoming pipemakers appear to have no connections either directly or indirectly with the older families. This in itself suggests the industry could have restarted almost spontaneously in a suitable area, something which would certainly agree with the rapid appearance of so many makers in the one area in such a short period.

There are, however, other possibilities to explain the rapid appearance of St Jude's as the C19 Bristol pipemaking quartier. The area was physically part of the city but legally (until 1835) outside it and in Gloucestershire, so that any city legislation to the disadvantage of pipemaking, such as a ban on kilns or any industry in residential areas or laws regarding wages and employment, would not apply while at the same time the area, being contiguous to the city, could benefit from city markets and possibly undersell city competitors. It cannot be coincidence that the part of St Jude's showing the heaviest concentration of occupation - lanes, courts, back-garden buildings - from even before 1800 (see above) is that SW of Wade St, and particularly the New St area, the part nearest the city boundary; and it is probably no more coincidence that pipemakers throughout the C19 concentrate in the same area - Gt George, Gt Ann, and New Sts (cf FIGS 142-45). Latimer records no events ca.1810 which might have caused the industry to relocate, but an examination of Council records might reveal some laws restricting industral activity in the central area of the city clearly occupied by pipemakers in the C18 (Section V above); certainly, from the 1820s onwards virtually all pipemakers recorded outside St Jude's were either south of the river in St Mary Redcliff and Temple, an area generally associated with industry last century and earlier, particularly glass and pottery (Buchanan and Cossons 1969: 146; Pountney 1920: map between pp358 and 359), or in a handful of isolated cases elsewhere in industrial areas of St Philip and Jacob and in Bedminster (FIGS 144-45). However, one must consider George James, recorded on Lamb St 1817-19, who is presumably the George James noted in Lewin's Mead (i.e. back in the city) intermittently from 1826 to 1840 and succeeded by Mary James, presumably his wife, noted in 1842 - this hardly suggests a rigid policy of excluding pipemakers from the central area.

D.M. Smith in studying the Birmingham gunmaking quartier suggests that "The presence of such a highly specialized industrial zone with a preponderance of very small concerns is an uncommon but not unique feature of Britain's industrial towns and cities" (D.M. Smith 1964: 106), and he instances the Birmingham jewellery area and the now-defunct silk-weaving areas of Coventry and Macclesfield as similar examples. However, as noted earlier (4: passim), this feature certainly appears to have been relatively common among pipemakers, and as again noted earlier (p.384 above), there are a number of examples of such quartiers for various trades in London. There are some points of similarity between the movements of the Birmingham gun trade and the Bristol clay pipe trade from the C18, and in view of Smith's excellent treatment of the former (cf also Wise 1951) it is worth noting these similarities here.

Just as St Jude's was not originally Bristol's pipemaking area, so the present Birmingham gunmaking quartier of St Mary's was not the original seat of that industry. At the beginning of the C18, gunmaking in Birmingham was concentrated in the Digbeth area south of the city centre, an area which became congested as this trade expanded. In the early 1740s, the present gun quarter of St Mary's was being developed as a residential area. Unlike many other such areas being built on what was then the outskirts of Birmingham, this area did not have restrictive covenants prohibiting industrial development, and from relatively early on Birmingham gunmakers began to move into the area, though unlike the pipemakers in St Jude's the movement was a slow, if steady, one: in 1777, 16% of Birmingham gunmakers were in St Mary's; by 1815 it was 28%; by 1829, 62%; by 1868 it had dropped somewhat to 53% but by 1900 it was up to 71%, and as the industry declined in the C20 the percentage became even higher (D.M. Smith 1964: 110-2, fig 2, table 2).

The original buildings in the St Mary's quartier still had, until recent demolition, their original Georgian facade, and it is possible the earliest gunmakers to move into the area were moving to places they intended to use solely as residences, for the best houses in the area appear to have been as good as any then occupied by the town's wealthiest merchants and manufacturers. However, the lack of restrictions on industrial development in the area, together with the entrepreneurial method of gun-manufacture, with numbers of highly-specialized craftsmen producing parts for the final product for whom closeness of workshops was important, easily led to the industrialization of properties, and once started such a move generated its own momentum. One early maker in the area, for example, erected a Proof House where he proved his own barrels and those of any other gunmaker who cared to send his barrels to him, and this would have added to the attraction of the area for other gunmakers (Wise 1951: 68 n.16). Here St Mary's differs from St Jude's, for St Jude's was certainly not designed originally as an upper-class residential area, and the pipemaking trade does not involve specialized aspects such as those of the material makers, setters up, and gunmakers of the gun trade, though at least latterly pipes were being made in St Jude's on a contract basis with local individuals who were probably supplied the clay and made the pipes up to, but not including, the firing stage for the major pipemaking businesses of the area (pp176, 406, 542-3 above; see also below pp734-5). However, the extending of premises into the original back-gardens in St Mary's (D.M. Smith 1964: 112-3, fig 3, 116 fig 4) is certainly a feature repeated in St Jude's (see above confirming the original essentially non-industrial intention for the two areas.

Wise's examination of Birmingham gun and jewellery quarters (Wise 1951) suggests the latter trade had some parallels with the former. The jewellery trade did not become localized as early as the gun trade, but already by 1777 the Newhall Estate was beginning to fill with jewellers in the broadest sense of those making the notorious Birmingham "toys" or "pretences". As the quality of the trade improved in the late C18 specialists began to appear, among them silversmiths who began to concentrate in the new streets of the Newhall Estate NW of the original area and in the neighbourhood of St Paul's Church, and later as housing development spread NW along the West Bromwich road in the area immediately NW of the church. In the first quarter of the C19 begins the first development of a localized jewellery quarter, employees of the newly-developing high-quality trades "continuously setting up on their own account" and thereby increasing the number of businesses in existence. With the recovery in the 1830s from the depression in the previous decade, expansion and specialization continued and the industry spread NW again as new houses were erected. This trend north-westwards continued as newer and larger houses were built, and by 1865 the jewellery trade had settled in its present quarter in the Vyse St area, though even so it has extended ever NW in the C20 along the West Bromwich road (Wise 1951: 68-70, 67 fig 3, 61 fig 1).

Here movement appears to be clearly associated with increasing specialization and opening up of small businesses by employees of other businesses, neither of which appears to have contributed to the development of the St Jude's pipemaking area in Bristol, though certainly, as noted earlier (p.542), St Jude's pipemakers - and almost certainly pipemakers everywhere as a group (cf 4: passim) - tended to set up their own little businesses as soon as they could "set up an oven and purchase a mould and a little clay". However, the factors causing the rise of the Birmingham gun and jewellery quartiers do not seem to apply to any real degree to the emergence of St Jude's as a pipemaking quartier.

Detailed investigation suggests no simple solution to the problem of why St Jude's became a pipemaking area. The revival of the industry in the C19 starts ca.1805, for it is at this time makers start to take their freedom and take apprentices again. In 1805 the directory lists eight makers, five of whom - John Carey, Joseph Edwards II, Martha Okely, Samuel Richards II, and Anna Viner - are of the old, pre-American Revolution days of the industry (cf Section VI above). Of the three newcomers, Wm Pike and Co of Christmas St appear only for the years 1806-12, and the business was probably a sideline for Pike who appears to have been landlord of the "Globe", also on Christmas St, from 1803 to 1821; while John Mates Young of Merchant St, listed as a pipemaker 1803-06, may have had several irons in the fire for he was an auctioneer and broker in 1800 and either he or a relative (probably his father) was a cabinet-maker in 1797 and 1798 (a Mary Young, presumably the widow, is listed 1807-08; the business continues as Sheffield and Haynes 1809-12 and under James Sheffield 1813-25, but again pipemaking was only part of wider commercial interests, Sheffield being at various times a tobacconist, grocer, and broker). The third newcomer is John Ring and Co of Temple Back, a family of potters[101] and later coal-merchants which continued to make pipes until 1883 or 1884; again, while this is a much longer-lived concern, pipemaking is only one branch of the business.

The impression is, therefore, that in 1805 the pipe industry was still predominantly in traditional hands and that those makers new to the trade were speculator-businessmen more typical of the C19, with commercial interests and investments spread to several occupations. The revival of the Bristol industry thus seems primarily to have been a spontaneous affair among the surviving C18 makers no doubt stimulated by a return to better economic conditions after the collapse of the industry in the 1760s and 1770s with the loss of the American colonial trade. This is further borne out by the final apprentice-roll entries: as noted in Section IV above, five pipemaking businesses - the Careys, Richardses, Okelys, William Thomas, and Thomas George - continued to take apprentices during the black days from the 1770s and up to 1827 when the last pipemaker-apprentice is recorded, and of these business-owners all were of pre-American Revolution origins with the exception of William Thomas, which shows that as long as there were makers of the old tradition the old procedures were recognised. The cessation of the latter coincides with the rising new generation of makers.

By 1815 the picture is changing. The Carey family, who appear to have been continually migrating (FIG 207), have moved into St Jude's, but the surviving pipemakers of the old order - Edwards, Okely, and Richards -

remain at their old locations and indeed continue to do so as long as they remain in Bristol. A new member of this group appears, Thomas George, F 1812 by virtue of having married Ann a sister or half-sister of William Okely, living in St Jude's, though his is an anomalous case and will be discussed separately. Of the seven "new order" makers listed two are members of the Ring family and one is Sheffield the successor of Young noted above; the remaining four are all newcomers working in St Jude's. The move of the Careys is particularly interesting, for in 1812, in which year Israel II appears in the directories on Ann [sic] St in St Jude's, he votes from Broadmead in St James, in the centre of the city; while in 1818, by which time he is on Gt George St in St Jude's according to the directories, he votes from there. The implication is that initially Carey was moving factory site and only later did he decide to leave the more socially-acceptable city centre to be with his business. The Broadmead address is confirmed by the directoies, which list his living there 1811-13 (for more detail on the Carey family business see Section VI above).

By 1825 the old guard is represented only by one of the Careys and two of the George family, all three working in St Jude's; and only 2 of the 11 makers listed work outside St Jude's - the Ring firm and a newcomer Thomas Fisher in Temple St. By 1835 there are 18 makers listed and the industry is rapidly expanding, and only the two or three members of the George family[102] have ties with the C18 industry. The number of makers in St Jude's, 11 of the 18, is lower than average, though 3 more - David George, White, and Winchester - are in St Philip and Jacob In-parish and very near the St Jude's area. Apart from the Ring firm, and George James now in Lewin's Mead (see above), the others outside St Jude's are Charles Eve at 72 Redcliff St and William Watkins at 15 Temple St.

A late case of a maker appearing in St Jude's who had certainly been trained outside the area, though he may have worked there from long before his first directory appearance, is Philip Guy. Guy was apprenticed 1812 to William Okely, though he did not take his freedom until 1838. No further references to him occur until 1850, when it is presumably he who forms a partnership with James Saunders which continues at 10 Gt Ann St until 1860. Saunders, A 1777 as a "china painter" and F 1812 as a pipemaker, first appears in directories in 1815 on Ann St [sic], then disappears until 1825 though the 1818 and 1820 poll-books record him on Gt Ann St: he reappears 1825-31 at 39 Gt Ann St and 1832-48 at number 19, being listed as Sa[u]nders and Down from 1839, and in 1849 Sa[u]nders and Down appear at number 10. Unless he lived to be ca.100 Saunders must have been dead by 1860 (he is last definitely recorded in the 1841 polls); presumably latterly first Down and then Guy were the active partners. The property-deeds would probably give the details; Guy is recorded alone at 10 Gt Ann St for one more year, 1861. As William Okely was at Under the Bank all the time Guy would have been his apprentice it seems clear Guy moved at some time subsequently into St Jude's, probably as a journeyman until his association with Saunders in 1850.

Other examples of makers, never listed by directories and therefore probably journeymen, drifting into St Jude's are found in the C19 poll books, as noted briefly in Section VI above. James Edgar F 1812, for example, votes in that year from Narrow Plain in St Philip and Jacob

In-parish, near enough to St Jude's for him to have been employed there, but in 1818 and 1820 is noted at Host St and was thus possibly working for William Okely. However, by 1830, and in 1832, 1835, and 1837, he is in Gt George St, indicating he had moved to where the action was. John Tovey, also F 1812, was on Castle St at that date, but had begun a westward drift by 1818, for in that year and in 1820 he votes from Old Market St. By 1830 he had moved into St Jude's, voting from Gt George St in that year and in 1832 and 1835. By 1837 he had actually moved farther west and slightly beyond St Jude's, being noted in the poll book for that year on Earl St, a narrow lane off Pennywell Lane or Rd a little past Eugene St, and he is probably there in 1841 as well, though the poll book gives his address as Pennywell Rd. (Earl St is noted by Ashmead (FIG 168) as a cul-de-sac footpath with a row of houses and backgardens on its SW side; it and its houses were still there, though unnamed, in 1903 (FIG 175), almost opposite Newton St, but by 1952 it had gone (FIG 176), most of its site being under the engineering works which even since that date has expanded to entirely cover the area behind Eugene St and Vestry Hall as far as White St (cf FIGS 176 and 178, the latter the 1963 OS plan). Ashmead shows the area as still substantially open countryside, so Edgar may have been successful enough to move from the slums, though the change from Ashmead's Pennywell "Lane" to the poll-book's Pennywell "Road" indicates the rapid urban expansion in the area.)

Another example is William Player F 1830, who votes from Redcross St, adjacent to New St and Lamb St but just inside St Philip and Jacob In-parish, in 1830 and 1835 but has moved to Gt Ann St by 1841. This could indicate a change of employer, for while living in Redcross St he could have been working for the White family who were making pipes then at Rich's Buildings, the northernmost part - now demolished but still there in 1903 - of Asher Lane which runs north off Redcross St.[103] Similarly, John Watkins F 1830 votes in that year from Temple - no street is given, but perhaps he was working for Thomas Fisher who was at 70 Temple St 1825-32 - but in 1832 and 1835 is in Eugene St, presumably as a journeyman to a St Jude's maker. The Appleford family, Thomas Sr F 1804 and Thomas jr F 1830, is another example, the father being recorded at Mary Bush Lane in Castle Precincts in 1812 but the son being in Gt Ann St in 1830 (by which time his father was dead) and in 1832. (However, not all the evidence falls so neatly into place: earlier the case of George James apparently moving out of St Jude's in the 1820s to work back in Lewin's Mead, one of the central pipemaking areas, was noted; and as noted in Section V above James Moon F 1808 votes from Gt Ann St in 1812, 1818, and 1820, but by 1830 is at Rose St in Temple, where he is also in 1832, and in 1835 is in adjacent Avon St (now covered by Temple Way). As he appears in directories only for 1833 and 1834 - in Pipe Lane (FIG 204), adjacent to Rose and Avon Sts - it is possible he started out as a journeyman with the earliest makers in St Jude's and subsequently moved out to found his own business in a less crowded area. Nicholas Kennicott, the first maker in St Jude's, also appears to have left there before leaving the city altogether, for although listed in the directories in Lamb St 1810-12 he votes at the October 1812 election from Pile St, St Mary Redcliffe, before disappearing for 18 years to reappear in 1830 in Swansea.)

From all this it would seem the new makers contributing to the regrowth of the Bristol pipe industry in the earlier C19 are predominantly those appearing in St Jude's and that they drew labour from the central areas of the city as the industry there died. Only the Carey family (a probable member of which, if old Thomas George was right, was still working in St Jude's in the later C19) of the ancien regime actually moved from their later C18 place of work within the city to St Jude's. The George family, as noted above, is somewhat anomalous. Thomas George I took his freedom 1812 having married Ann daughter of John Okely II and first appears in the trade directories in 1815 - under the "late entries", suggesting he may just have set up independent business. A brief examination of the property-deeds for his Gt Ann St premises (BAO 13480 passim), indicated George had bought it (for £150) apparently by 1810 and that he seems to have been working in association with a Thomas Okely. This Okely must be an in-law, probably a brother of half-brother of Ann and William, but how he fits in here is unclear. If he was a pipemaker he does not appear in apprentice or freedom rolls nor in trade directories. If the Thomas George who died in 1968 was correct, Thomas George I at one time assisted John Carey making pipes for the West Africa trade at his Old Market St premises, apparently ca.1800 (Sections VI and VII(b)(3) above), suggesting George may indeed have been a journeyman in the pipe trade before setting up for himself.

Thomas George I died in 1835, and though his age at death is not known his son James who died in 1873 was 86 when he died and therefore born ca.1787, from which one may assume Thomas was married by that date. Thomas's wife Ann died 1847 aged 81 and was thus born ca.1766, two years before her father John Okely II became free, so she must have married ca.21. Thomas George I was therefore probably born ca.1765. He obviously earned his living for a long time between his marriage ca.1786 and the time he appears to launch into pipemaking in 1815 aged ca.50: he could have worked with his in-laws or for someone else as a journeyman pipemaker or even like John Frederick Bryant jr in a variety of other trades until the revival of the industry offered the opportunity for him to eventually set up what was to be the last pipemaking business in Bristol. The problem as to whether he was a native of St Jude's or moved there - perhaps because of the embryo industry rapidly growing there, perhaps as an agreement with his in-laws to work well away from Okely territory - remains unsolved. If he came from St Jude's he no doubt appreciated the advantages of cheap property and ready labour there, and it is possible he did come from there, for a John George appears as an excise officer on Gt Ann St in the 1790s. An examination of Gt Ann St property-deeds would probably show whether this George was a relative.

Another maker who may have been a native of St Jude's is George Gay. Gay is recorded as a pipemaker in New St from 1832 to 1863; throughout this period he was also a carpenter, and from 1852 was in addition an undertaker. In 1798 a Gay and Son are noted as carpenters and joiners in New St, in 1800 a John Gay is listed with the same trades on the same street, and in 1805 a William Gay appears as a carpenter there, suggesting the Gay family had been on New St and in the carpentry business from before 1800 and long before a member added pipemaking in 1832. The 1828 name Gay's Ct for the court in the New St-Pinnel St-Gt Ann St block called Burge's Ct by 1883 may be significant here, the Gay family possibly originally owning that property; again, an examination of area property-deeds would resolve the matter.

In summary, it can be said there is evidence both for city pipemaking moving into St Jude's and St Jude's inhabitants adopting pipemaking as a new industry. It seems likely the latter is the predominating factor in St Jude's becoming a pipemakers' ghetto in the C19. The industry begins to revive ca.1805, before St Jude's is noted having pipemakers, but there is no doubt the concentration in the latter area is what builds up the industry. As an area, St Jude's had the advantages of already being one of small independent trades and having a high density of poor inhabitants making for cheap available labour: prior to 1835 the area was also beyond the city's authority though able to profit from its market. Specific reasons for the sudden emergence in the 1810s of St Jude's as the Bristol pipemaking centre are, however, as yet lacking.

The following are the pipemakers listed in the Matthews's directories for 1805, 1815, 1825, and 1835. Names asterisked are those associated with C18 pipemaking families, either by descent, marriage, or apprenticeship; St Jude's addresses are underlined:

1805
*John Carey; Redcross St
*Joseph Edwards; Temple St
*Martha Okely; Lewin's Mead
William Pike and Co; 20 Christmas St
*Samuel Richards; 34 Thomas St
John Ring and Co; Temple Back
*Anna Viner; Under the Bank [Colston Ave]
John Mates Young; 1 Merchant St
1815
*John Carey; Lamb St
*Israel Carey; George's [sic] St - Counter, 4 River St, Rope Walk
*Joseph Edwards; Temple St
*Thomas George; Gt Ann St without
*William Okely; Under the Bank
Roberts and Steevens; George's St without
*Samuel Richards; 34 Thomas St
Ring and Cookworthy; Temple Back
Sarah Ring; 14 Bath St
James Sa[u]nders; Ann [sic] St without
James Sheffield; 1-2 Merchant St
Joseph White; New St
Thomas Williams; Lamb St, Lawford's Gate
1825
Peter Baston; 17 New St without
*Israel Carey; New St without
Thomas Fisher; 70 Temple St
*Thomas George; 5 Gt Ann St
*James George; 11 Gt Ann St
Ring and Co; Avon St, Gt Gardens
Thomas Roberts; Gt George St without

James Sa[u]nders; 39 Gt Ann St
John Williams; Lamb St without
William Willis; 17 Gt Ann St
James Sheffield; 1 Merchant St
1835
Peter Baston; 17 New St
Joseph Ellis; Gt George St without
Charles Eve; 72 Redcliff St
George Gay; New St without
*?David George; St Philip's Plain
*James George; 11 Gt Ann St
*Thomas George; 5 Gt Ann St
George James; Lewin's Mead
William Pratt; 50 New St
Richard Frank Ring; Temple Back
Sarah Roberts; Gt George St, Ayre's Lane
Thomas Roberts; 14 Gt George St
James Sa[u]nders; 19 Gt Ann St
William Thomas; 20 Little George St
William Watkins; 15 Temple St
Joseph White; Rich's Blgs, Redcross St
Peter Williams; 10 Gt Ann St without
James Winchester; Bread St, St Philips

As noted in Section VI above, the number of makers recorded in the C19 rises rapidly in the 1820s and particularly the 1830s, the high-point of the industry, at least in terms of number of businesses, being in the 1840s and 1850s. The highest number of makers recorded in Matthews's directories is 23, in 1850, though there is evidence from other directories appearing in the 1850s (see Section VI) that there were up to at least 27 makers in business at that time. Between 1861 and 1867, however, the bottom falls out of the industry, the number of makers listed by Matthews's directories falling from 18 to 7, and from the 1870s there is only an average of 5 makers. By 1900 there are only three, by 1912 only one, and after 1921, none.

By good fortune, an anonymous correspondent to the *Examiner* wrote from August to at least October 1850 a weekly series of "Letters on the Condition of the Working-Classes of Bristol and its Vicinity", including St Jude's which appeared in the paper and were reprinted a week later in pamphlet form. At least 11 letters appeared, and more were promised, but the bound copy in Bristol Public Library is incomplete, there being no letters in it beyond number XI and numbers IV and VIII being missing (confusingly, letters V and IX are misnumbered IV and VIII respectively). Some pages are also partly unreadable because of bad binding. St Jude's is discussed in the first 7 letters, though in fact the whole of letter VI and the greater parts of numbers V and VII are a diatribe against Mormonism, which had been enjoying spectacular success in industrial areas of England around this time. In fact, the *Examiner*, no doubt inspired by Mayhew's reports in the London *Morning Chronicle* from September 1849, appears to have sent a reporter to investigate working-class conditions, for the first "letter" (17

August) commences:

> SIR, - In accordance with your instructions, and with a view to a regular and systematic investigation, I have taken some steps towards the commencement of an inquiry into the moral and physical condition of the labouring classes and poor of the city and vicinity of Bristol.

The first letter includes a description of the work, wages, and living-conditions of a woman pipemaker. The manufacturing process has been noted in 2: VIII and the wages discussed in relation to other C19 evidence in 5: II, and the living-conditions were described in Section VI above, but the last are worth noting again here to compare with the picture of St Jude's already evoked by other evidence. Pipemaking was described as one of the staple industries of the district, most of the workers being women employed in the small "factories" of the area. The woman described was apparently in effect a subcontractor for one of these firms, manufacturing pipes at home up to but excluding the firing stage and selling them at 4d a gross of 180 to the firm for firing and retailing. Presumably she was supplied with clay by the firm, but she had to pay a man 5-1/2d a week to prepare the clay for her. She had taken up pipemaking on the death of her husband, a seaman, in order to keep herself and young family: a boy of unspecified age, a girl aged 5 or 6, and another aged 14. Because she was "not strong enough to be very expert in the business" her production rate was only 9 gross a week or, assuming a six-day week, 1-1/2 gross a day - as noted in 5: II, a skilled pipemaker could make ca.3 gross a day. At 4d a gross she thus earned 3s a week minus the 5-1/2d to the man preparing the clay; this supposes steady employment, however, and the anonymous reporter notes this was not always the case; indeed, in his following letter (24 August) he noted that a woman who had been a pipemaker since a girl and was considered an expert at the trade had subsequently assured him her earnings never averaged more than ca.4s a week and had recently been much less, work being particularly scarce at that time and the American and Canadian markets having been almost wholly lost within the previous three or four years.

The widow's income was supplemented by 2s a week brought in by the son, who picked horsehair, and 1s and a loaf of bread from the parish to support the girl, making a total income of 5s6-1/2d plus a loaf. A daughter living away from home occasionally gave her mother a dress. Of the 5s6-1/2d, rent accounted for 1s6d (reduced 3d on the death of her husband) and most of the rest went on bread. Potatoes were had twice or three times a week and a half or three-quarters lb of meat was bought on a Saturday and made to last as long as possible into the next week. Butter was not normally available; the remaining expense was 2-1/2d for an oz of tea, which was measured out in quantities measuring a large thimbleful and made to last the week.

The family sitting-room - they had three small rooms - was described as reasonably furnished for the locality. It had three or four wooden chairs, two small tables, a fender, and a few other items. There was a set of ill-matched crockery in an open cupboard, some glass and earthenware ornaments including a glass globe full of salt hanging from the ceiling - apparently a favourite ornament among the poor - a branch of coral, several small coloured prints, and two religious pictures. The family was Baptist, finding they could understand what was being said better there than in the

Anglican church.

From this it appears that a widow and three children could actually live in St Jude's for under 6s a week in 1850 and not, apparently, in the squalor of the very worst areas, for they could afford three rooms. The appalling part, however, was the diet indicated, which was very largely bread with some potatoes and a little meat and an infinitismal amount of tea. Butter, it was specifically noted, was not normally used because that within their price-range was generally bad; milk is not noted. This seems to have been entirely typical of the area: in his third letter (31 August) the correspondent notes whole families existing

> to a very great extent, on the smallest amount of food by which existence is to be supported; from time to time, they die of want, or of sickness the result of want;....The great majority [of the inhaitants] very seldom taste meat; bread is their chief - almost their only - subsistence, and numbers have not nearly enough, even of this.

The same letter also noted there was a lack of water in the dwellings, even for drinking purposes; and in the preceding letter he noted that "Twice of thrice in each day, kettles, cans, and pitchers come into requisition; and at such times this universal water-carrying, with the appearence and manners of those engaged in it, recall forcibly the characteristics of some of the peninsular or continental cities."

Even an expert pipemaker, as noted above, could earn only ca.4s a week at this time, even when fully employed; however, with both adults in a family working plus some earnings from children income would have been, in times of steady employment, perhaps ca.12s a week. With a full family, however, rent, as indicated above, was higher and so of course would have been the cost of food and other necessities; apart from the occasional dress from an older daughter, clothing is not indicated as being obtained by the widow noted above, for example, though she is described as "decently-dressed". Whichever way these figures are viewed, however, it is still surprising that a widow and three children could get by on 5s6-1/2d plus a loaf of bread in the mid-C19. Further, the fact the widow could rent three rooms and had them furnished, albeit spartanly, with a variety of items is in strong contrast to descriptions of housing in the same area 33 years later, when one- and two-room hovels almost destitute of any furnishings and at higher rents than that paid by the widow appear to have been standard, sometimes occupied by people who could not be interviewed because they had no clothes (see pp 744-7 below). It would be instructive to have cost-of-living figures for Bristol for the mid- and later C19 for comparison, both with each other and with figures for other cities. In any event, however, it is clear thet even at its zenith in mid-century the Bristol pipemaking industry offered its employees a sub-living wage for a weekly grind of hard physical work and long hours and then only when work was available.

The reporter's account of the housing typical of the area has already been quoted, and more specific descriptions are not wanting. For example, in a street not far from the then newly-opened church of St Jude one in a row of several dilapidated tenements had partially collapsed, leaving only the lower walls. The ground-floor rooms had been used initially as an ash-heap, but subsequently had been cleared to make the former front room a sty for a couple of pigs and the rear a stable for a horse. According to the reporter, the property was apparently in chancery and much of what was in similar ruinous condition in the area had been similarly tied up for a lengthy period (Letter I). The presence of farm animals in the area was not unusual, to judge by subsequent observations by the same reporter: in his second letter he noted that where there was a backyard or the remnant of a back-garden a pony or donkey was very frequently accommodated - often having to pass through the house to reach the back - and some dwellings had cattle-yards behind them, the reporter noting he had observed two beasts gazing through an open window into a home. This feature of slum life last century was not confined to Bristol - pigs, sheep, cows, and other livestock were still being slowly cleared from London slums in the 1870s and as late as 1892 it could be recorded in a riverside parish there that donkeys, goats, and chickens had as free a run of some of the houses by night as they had of the streets by day (Dyos 1967: 25-6; Dyos and Reeder 1973: 364). The frequency of ponies or donkeys in St Jude's was because many inhabitants carted sand or junk (see below); the cattle were probably for the butchers and slaughterers noted in the area (Letters I and III), these occupations no doubt being associated with those of tanning and glue-making along the Frome noted earlier, though perhaps some supplied milk.

Few of the houses, the reporter observed in his second letter, had more than five or six rooms; many had less, and "in a very large proportion of instances" each room was the home of a family, though in some cases two or three families shared a single room. He had heard, he continued, of as many as 40 people "of both sexes and all ages" in one average-sized house. Windows with their full complement of glass, he noted in his first letter, were the exception rather than the rule, and where broken windows were not left in that state rags, paper, wood, or pasteboard were used to block the gaps. Some occupied premises did not even have a window-frame surviving. Where glazed, windows were of small panes of rough green glass, semi-opaque even before they had acquired their accumulated grime.

As already noted, the widow pipemaker was paying 1s6d weekly in rent for her three small rooms, a sum which had been 1s9d before her husband's death. Nearby a cork-cutter's wife and youngest child - a boy of about four - lived in a single third-storey room for which she had originally paid 10d a week, though now reduced to 9d (Letter II). Furniture comprised a small table, a chair, two wooden stools, a coloured coverlet, an earthen pan, a saucepan, a small piece of old sheet iron for a fender, and the worn remains of a poker. Neither ornaments nor food were to be seen, and the reporter suspected neither wife nor child had eaten since the previous morning. Bread when they could obtain it, was almost their only food; the children sometimes had a few potatoes, but meat was entirely unknown. Bread was 4-1/2d a quartern, but when she could the mother bought a peck of flour and made bread, thereby saving cost although she had to pay 4d for the baking. There was no bed and the woman apparently slept on the floor, a small bundle of ragged old carpet there probably serving as a pillow. The floor had holes through which rafters and dust could be seen, but the room and its occupants were decent and clean. The husband apparently travelled much of southern England looking for work, having been in London and Southampton, and sent home money at irregular intervals; he had with him the eldest child, a boy of ten. The wife worked sporadically as a needlewoman; lately she had made two check shirts for a neighbour and been paid 9d each for them. Had she made them for a slop-shop she would have been paid 1-1/2d each, and for tolerably good white shirts she would have been paid 2-1/2d each. As only four could be made a day weekly earning seldom came to more than 3s and often were less. Out of this she had to buy her own candles and thread. A deposit of 2s-3s was required by the shop as security for goods handed out, and as only a few could afford this sum these few received the order and in turn farmed out work to those unable to find the money, the work thus being sub-subcontracted.

In his third letter, the reporter described a family of seven living by day in a room about 6 ft by 7 ft and at night in a garret. There was scarcely an article of furniture in either room, and there were no beds. The father and the two sons old enough to work did so when they could as well-sinkers and masons' labourers but rarely had more than two days' work in the week and very frequently less, the increasing use of piped water having greatly decreased the need for wells. Unfortunately no rent is stated for their rooms.

In describing life in Bethnal Green, Townsend noted "attachment to flowers and pets is almost universal" (1957: 22, 1963 ed), and the *Examiner*'s correspondent noted the same in St Jude's in his first letter. He noted many of the dwellings had a few plants in flowerpots, pans, or boxes on window-sills or within windows. The scarlet runner-bean appeared to be a favourite, fuschia, geraniums, nasturtiums, and marigolds also being noted, though few were in flower. Many of the houses had a birdcage hung outside, occupied by a blackbird or thrush.

Regarding employment in the area, the reporter offered a number of general observations and several specific examples. The area had, he said in this third letter,

> many industrious, sober, decent, therefore respectable, inhabitants; but to a very great extent, it seems to form one vast, repulsive refuge for the destitute - for the rejected of other localities, which, though poor, yet gain in comparison with this....there is hardly a man among those of whom I have spoken, that would not gladly work if he could find an employer; and as to a population being vicious, or badly inclined, the main cause of that, it would seem, and we may fully believe, are, in great measure, removable.

In his first letter, he noted

> The population appears to consist, in a very great degree, of persons who, being unable to obtain regular employment of any kind, and thus compelled to tax their ingenuity to find the means of keeping body and soul together, have either taken up some petty branch of industry, in which the material cost little, and for whose products here is, to a certain extent, a constant demand; or they are traders on a small scale, hawking their wares about the streets, or displaying them in the window of the common livingroom of their dwelling, and so make a pretence of shopkeeping; or, lastly, they have hit

> upon some temporarily successful mode of cloaking their real occupation, - that of beggars. There are, moreover, two or three small manufactures carried on in the vicinity, of a kind to allow a portion of the work to be performed by the operatives at their own hime, and some small number thus find bread....many obtain work occasionally, or sally forth at early morning and all day traverse the streets, the quays, and markets, ready to perform whatever chance task or office may fall their way, and by which they can earn a few pence, or even a morsel of bread. Pilferers no doubt there are, but the number [someone had alleged three-quarters of the population never ate before they had pilfered for their meal] has probably been greatly overstated.

Work in the area, however, appears to have been predominantly done by the women and children, again according to the first letter, many of the men spending hours or days lounging in groups at street corners or sitting on the pavement with their back to the wall "silently contemplating the other side of the street". Occasionally they would sing, or if a pack of cards, a piece of chalk, and some coins were available, play cards, generally using a cellar trapdoor as the playing surface. This appears to be different from what Booth found in East London ca.40 years later, for he noted that "As a rule the wives do not work, but the children all do: the boys commonly following their father (as is everywhere the case above the lowest classes), the girls taking to local trades, or going out to service" (quoted in Townsend 1957: 162, 1963 ed). However, in the northern Kensington Potteries by the end of the C19 there was a rather similar situation to that in St Jude's, laundry-work having replaced pig-keeping and potting to such a degree as the dominant occupation of the area that "laundress's husband" had become virtually a recognized occupation with some men of the area. (In this case it was the increasing middle-class housing in the surrounding areas which generated the growing demand for laundry-work, as it also probably created a market for female servants. The pottery and brick industry had begun to decline after 1860 as the brickfields became exhausted and the land taken over for housing development, while pig-breeding had been largely suppressed in the early 1870s after a prolonged campaign by the health authorities. However, the loss of these two predominantly male occupations does not entirely explain the later tendency for men to rely on the earnings of their wives or companions while doing little or nothing themselves, for there was much housing development in west London requiring builders' labourers, there was railway construction, goods yards, and other industrial work available west of the Potteries, and in the Potteries itself the erection of stables and a smithy in 1882 by the London General Omnibus Company offered plentiful employment (Malcolmson 1970: 53-67 and passim). However, it is possible there were not enough steady male occupations within the Potteries and their immediately surrounding area for a population with a large percentage of unskilled manual labour - almost 40% in the 1851 and 1861 censuses - and that the farther afield employment as an unskilled labourer was sought the more one was in areas with their own pool of unskilled labour. This may have been the case in St Jude's, where there is evidence (see below) that it was the lack of a trade or skill which made it difficult to find a better job.)

Girls in St Jude's did take to local trades at least as far as they were available, becoming pipemakers or producing kindling-wood, which latter appears to have been a major occupation or perhaps the most remunerative in the area (see below), and some did go into service, for the two elder daughters of the widow pipemaker are noted thus; but presumably a lack of traditionally male jobs, or more accurately a lack of employment paying male wages, and an over-abundance of unskilled manual labour kept much of the male population out of permanent work. In the second letter, a man who carted sand from Easton when asked why he did not look for more remunerative work, said his father had died young and as a result he, the son, had never been trained to any recognised craft or labour, and so could not get employment. A young woman pipemaker, when asked why she did not find a better job, gave a similar answer.

As noted above, the production of kindling was one of the staple occupations of the area (pipemaking was described as the other). Refuse from timber-yards, woodwork from old houses, soapboxes, sugarboxes, and the like were converted, sometimes indoors but mostly in the street and sometimes in several houses in succession. Men, the reporter noted in his first letter, were seldom seen doing this work; a woman with a billhook reduced the wood to proper size for sawing, which was done by children, mostly girls often under seven or eight. These pieces were then chopped into fragments by the children with the billhook, the sticks being taken into the house and made up in bundles. These were heaped in baskets and carried out on the heads of young women, either members of the family or ones employed to hawk the wood, the latter receiving 3d or more usually 2d for every 1s-worth sold. A basketful comprised nearly 100 bundles, which represented about a 1s-worth; sales were very variable, sometimes up to four basketsful being sold, sometimes none. The reporter observed that from the number of people engaged in this industry it could be considered the most remunerative of the poor's occupations, but that the competition in every sort of labour was so great the difference of profit among any of them must be very small.

Another occupation in the area, though a minor one, was the production of matchboxes, there being a wholesale dealer in the vicinity (Letter III). The existence of this trade in St Jude's is interesting because the wood used to manufacture the boxes was sent from London in old sugar-hogsheads or cases ready to be made up. It was delivered to those engaged in the manufacture - who were a few women and girls - in bundles of square pieces the proper size for the upper and lower portions of the box. The pieces had been cut nearly through by machine at the correct length so that all the matchbox-maker had to do was paste on the paper cover and press the cut edges together, the paper retaining the sides and end in place. Wage for this work was 2d a gross and production was three or four gross a day, so a matchbox-maker might earn 3s-4s a week when work was available.

The reporter mentions briefly here selling matches, but it is difficult to decide if the matchboxes were for local use or if the wholesale dealer referred to earlier sent the products back to London. The latter would imply considerably lower labour costs in Bristol to make it profitable to send semi-prepared material from London and then return the finished product. Matchbox-making was a standard occupation among the London destitute as late as the 1890s (Keating 1971: 177-8): the hero of Morrison's A Child of the Jago and his mother and two year-old sister make matchboxes - when they can get this much sought-after work - while the father is doing five years' porridge for burglary; and one of Townsend's Bethnal Green informants, who was 65 at the time of the interview in 1955, recalled her mother, herself, and others of the large family earning 2s3 3/4d for seven gross (Townsend 1957: 269, 1963 ed). Morrison describes matchbox-making as the most profitable work the temporarily fatherless Perrott family could expect to find: Mrs Perrott was a poor needlewoman, or she could have earned 1s a day, minus the cost of needles and thread, making shirts 16 hours a day; sack-making could bring in 1s7d per 100 sacks, a total that might be reached in four days "with speed and long hours"; and rush bag-making brought in more; but matchbox-making was the best work of all, for 144 outside cases and their paper label and sandpaper and the same number of trays to slide into them brought in 2-1/4d - for a special-size box it brought in 2-1/2d - and there were no overheads save for the cost of the paste and the string for tying up the boxes in batches and the time in fetching the work and taking it back, for the wood and labels and sandpaper were all supplied. Seven gross boxes could be made in a day if the maker worked long enough, so that a day's income would be 1s3 3/4d - as Townsend's informant remembered - minus the cost of the paste and string. The work, however, was difficult to get, the manufacturers complaining that people were buying Swedish matches (Morrison 1896: 206-9).

As noted earlier, many of the inhabitants kept a pony or donkey, which they used in the carting trade, either for junk or more commonly for sand. The latter, the correspondent noted in his second letter, was bought from pits at Easton and carried all over the city and suburbs, St Jude's apparently being the centre for this trade. The carter interviewed (see above), who had been in the trade since a boy, said his returns were enough to cover all his expenses, including the keep of his animal, and give him an average of ca.8s a week the year round. On this sum he brought up his family creditably, sending the younger children to school, and was said by others to be able to occasionally help those less fortunate to himself; he was, in the opinion of the reporter, exceptional, for the latter had observed many carter's animals had a habit of stopping outside public houses "from which circumstance a tolerably safe inference as to the whereabouts of their masters at such times, may perhaps be hazarded."

The junk trade was carried out by "A prodigious number of persons calling themselves 'Dealers in Marine Stores,' - that is to say, in everything dirty and detestable, and a heterogeneous mass of materials in addition". These stores comprised the lower rooms of dwellings, the windows stuffed full of material culled from gutters, ashpits, and scavenger's carts. There was, the reporter observed, hardly a street in the area without two to half-a-dozen such shops, all displaying large bills offering best prices for material and particularly for "rags, bones, bottles, junk,[104] old iron, copper, and every description of metal". Many of the dealers went 20 or 30 miles into the country for days with carts of crockery exchanging it for household rubbish, and children had rounds in the city and the country collecting material for which the dealer often paid them, if the amount was too small for cash, with lollypops. When sufficient material had been collected it was taken to wholesale dealers, though not before each piece had been inspected for items of further use - nails, for example, were removed from anything which held them. The tallow-chandling trade obtained appreciable amounts of raw material from such collectors, some of the old nails went to gunsmiths, rags and rope went to papermaking, bones were ground up for manure or cut into buttons or burnt to make lampblack or ivory-black, and iron was sent north by the shipload. The old rope went mostly for brown paper; one particular type, the flat rope of a mine-bucket, was said to form the strongest thin paper in existence, and was used for banknotes.

The work of the needlewoman and the slop-shop has already been described; another local occupation was butchering (cf above), carried out in the usual insanitary, smelly, and dehumanizing ways of the times (Letter III). The meat left the district two or three times weekly, some going to make Bologna sausages, some being sent to London. This type of occupation in C19 slums was not restricted to Bristol: Malcolmson (1970: 67-8) notes that a major occupation in the Potteries in northern Kensington in the middle of last century was pig-breeding, the pigs being fed on middle-class swill collected by the breeders from the homes of the well-to-do in the surrounding areas, slaughtered in the Potteries - at one time there were five licenced slaughter-houses there - and the bacon sold to the middle-class neighbours. Cowsheds in the Potteries suggest beef and dairy-products were also produced there for the same market.

The reporter also notes in his third letter that "A few travelling tinkers, and persons attending the neighbouring fairs with nuts or gingerbread are said to have some sort of habitation hereabout....": this suggests traditions like the "Horn Fair" in Wade St in the early C19 noted earlier may still have been held (in the early C19 it was held on Boxing Day, and as there is no evidence the Examiners's correspondent made any in-depth study of the area but simply recorded what he saw and felt in August and September of 1850, annual institutions of this kind would have gone unrecorded).

Even apart from the junk shops, however, there was according to the reporter a prodigious number of shops in the area, an observation which is fully in accord with trade directory evidence for St Jude's in the C19. The lower rooms of two houses out of three, and often of three or four in succession, would offer a collection of garden produce, items such as sticks and whiting (this last no doubt supplied by pipemakers), and sometimes a red herring or a dish of perriwinkles. Everyone, the correspondent observed, seemed to have something to sell though numbers complained they could hardly afford a morsel of bread; the amount of food displayed, however, was hardly more than might make a labourer's meal. There were a few meat-seller's shops, but they displayed little save on Saturday nights and even then the meat was small and of the coarsest kind (cf account of widow pipemaker above). However, it was noted the spectrum of shops was decidedly limited - "The list of what shops there are not, hereabout, would be a long one;..." - there being for example no chemist or bookseller (there was a small-scale establishment approximating the former on the outskirts of the area, but its goods were apparently restricted to Genuine Bear's Grease and highly-scented

Pomatum at 1d a pot).

Commenting on places of worship in his fifth letter (14 September), the reporter noted three or four churches and a similar number of chapels "of considerable size" within a half-mile or a little more of the centre of the area. His observations, however, were that an exceedingly small minority availed themselves, even irregularly, of these establishments and of those who did few were Anglicans. Such an observation would certainly agree with other C19 evidence (cf 4: VI).

St Jude's, he noted, had recently been erected - the foundation-stone had been laid on 7 August 1848 and the church consecrated and opened in June 1849 (Anonymous 1906 ed: 84) - and was open daily for morning and evening worship. Having overheard one labouring-class man say to another that the church was "a nice place, and a pity it's got no custom", the reporter visited it twice. The first was for a Saturday evening service, at which there were three choirboys and a congregation of seven, three or four of whom were local labouring-class inhabitants; the other was the following Sunday morning when there were 6 or 7 choiristers and a congregation of ca.70. He judged the church, which had a gallery at one end, to hold ca.700-850; the 1883 OS plan - FIG 174 - however, indicates a seating of only 350.

The church interior was described as being excessively plain save for the chancel, which was entirely the opposite, with an encaustic-tiled floor, a bright blue ceiling powdered with golden stars, fretted niches in the side-walls apparently for the clergy, and a sumptuously-clothed three-tiered altar, the whole being cut off by a massive wooden screen which effectively obstured most of the ritual from the congregation. Lighting was by gas.

The whole internal arrangement, it was noted with strong disapproval, was Anglo-Roman, differing in no degree from "what is observable in certain edificies recently erected by papists in this country for the celebration of what they believe to be religious worship". The Sunday sermon was apparently no better, being on the efficacy of prayer and "touched no debatable point of doctrine - such a discourse in fact as either Protestant or Papist might deliver". After the final prayer a chorister came forward immediately to close the doors of the screen "and so keep the curious at bay".

From all this, the reporter concluded, it was no surprise to find the church's ministry had so far made small impression on the district, if indeed, he suggested, its ministrations were calculated to have any benefit at any time. Outside the church services, it appears the clergy gave immediate attention to calls from the sick, as also did clergy of certain dissenting bodies who held occasional prayer-meetings in the street;

> but beyond this it does not appear that anything calculated to promote the advancement or extend the influence of religion among the people is attempted, and it must be admitted that the contemplation of any such attempt is met by the very greatest discouragement.

These comments probably do less than justice to work being done in the area by the BCM and the Friends, but as Inglis notes (1963: passim) attempts to reach the working classes by any of the major and conventional religious groups was much more a feature of the second half of the C19 - in other words, after the time of the Examiner's reporter - than of the first half. Further, the reporter was writing at a time when the Roman hierarchy had been restored in England and Cardinal Wiseman and Pius IX were talking of crusades to reconvert England, and when major Irish immigration following the potato famine of the late 1840s was to make for the first time in modern England a significant number of Roman Catholics (cf Inglis 1963: chapt 3), hence his fear, shared by many others in the C19, of ultimate Roman domination.

One religious group, however, which the reporter observed in the same letter certainly had influence in the area, was the Mormons; and there follows an extended fulmination about Mormonism and its more obvious errors in historical beliefs. This diatribe has to be set against Mormonism's spectacular success in the late 1830s and in the 1840s in industrial areas of England (E.P. Thompson 1963: 882, 429 n.1, 1968 ed.) Unfortunately, the account tells us nothing about Mormon activities in St Jude's beyond its apparent popularity, though in the seventh letter (28 September) there is a reference to a Mormon chapel in "St Philip's" - whether in the out- or in-parish is not indicated.

Though the concluding part of the seventh letter deals with education, the comments made are all entirely general. The correspondent was enthusiastically in favour of improved educational facilities, and public libraries and museums, citing an act of August 1850 replacing an earlier one and allowing any municipal borough with a population over 10,000 to set up the latter establishments if it wished, the costs to come from a rate of no more than 1/2d in the pound. His motives were not, however, entirely altruistic, for he was convinced lack of education was "evinced by the mental condition of the masses, young and old, and by members of them being found ready to become Socialists, Mormons, or what not, as one delusion after another is presented to their notice". With education, he ended the letter in purple tones, and

> our working-classes well informed and steady, I do not see what is to hinder us from setting The Pope and the Mormons at defiance, and counteracting all their schemes for the subversion of our faith, the destruction of our peace and freedom, and the ruin o. every well-ordered and useful instituion in the country.

There were schools in the area, for the sand-carter noted earlier earning ca.8s a week sent his younger children to one, and the needle-woman wife of the corkcutter noted above sent her two eldest children to the Hannah More schools at Lawford's Gate, but as there was a charge of 1d a week per pupil was unable to send her third child. Even at that she was sometimes unable to pay for the other two every Monday, at which time the children, otherwise willing to go to school, were reluctant to go because defaulters' names were called out by the teacher. (Hannah More, the Bristol teacher, author, and social and religious worker, died 1833 aged 88 and left, after many charitable bequests, the residue of her estate to Holy Trinity Church, St Philip and Jacob Out-parish. A number of parochial schools were erected in this neighbourhood by subscription 1833-39 in her memory (Latimer 1887: 198-9); no doubt it was to these the two children went.)

By the end of the C19 the St Jude's area was famous, or infamous, for its common lodging-houses (see below). These were clearly in existence before 1850, for in his third letter the Examiner's correspondent noted that "The so-called 'lodging-houses' of St Philip's, have frequently been made the subject of remark, and of censure". Here again, the Examiner's interest was topical, for Samuel has noted that about the mid-C19 common lodging-houses were the subject of much anxious examination, there being "few towns without a street or two largely given over to them" (Samuel 1973: 127). Generally, the Examiner's correspondent noted, 2d or 3d a night was charged for lodging, with no questions asked. The houses were seldom large and the number of rooms few, resulting in "the most intolerable overcrowding of the apartments, and the destruction of all regard for morality, or even decency, arising from the stowage of both sexes and all ages together"; dried herrings, he remarked, were better packed in their own barrels, being at least packed by size and laid in one direction. Visits from city missionaries and government inspectors had made some improvement, but there was urgent need of much more.

Thirty-three years later another Bristol paper, the Bristol Mercury and Daily Post sent their "Special Commissioner" to look at Bristol slums, and the following year his columns appeared in book form (Anonymous 1884). Chapters III to V deal with St Jude's, and their titles, entitled "Cells above Ground in St Jude's", "Working Women in St Jude's", and "Waifs and Wanderers in St Jude's", give an accurate enough indication of their contents. This series is more detailed and stark than that in the Examiner, and one's credulity is strained, in the light of the descriptions, by the remark made more than once that things had become better in recent years: accounts of women and children who could not be interviewed because they had no clothes, or who had to be covered with fragments of carpets before being presentable (pp17, 20, 26), were not noted by the Examiner's correspondent.

The worst parts of St Jude's, with the highest proportion of one-room dwellings were New, Pinnel, Gt Ann, and Wade Sts, together with Brick St on the opposite side of Lamb St from Wade St (p.17). New St in particular had some of the worst courts (p.29). This agrees with other evidence noted earlier regarding the New St-Pinnel St-Gt Ann St area being one of courts and heavy occupation from early times. Gt George St, by contrast, was regarded locally as aristocratic, with a greater proportion of people in regular employment, and people there felt they were falling in the social scale if they had to move to adjoining streets (p.17). The George pipemaking family sold their Gt Ann St property in 1873 (to one Curry who sold it to the BCM in 1875) and moved to the Gt George St property they had taken over two years earlier from pipemaker Thomas Roberts II who had been there since 1866, which suggests that despite the folding of the pipemaking industry in the 1860s the Georges were well enough off to move to a better street - as noted in Section VI above, the family were also local landlords. (James George I, son of Thomas George I the founder of the business who had bought the Gt Ann St property in 1810, died in 1873 aged 86; possibly he had held on to the family home and on his death his family hastened to remove themselves from an area whose social position had deteriorated since their grandfather's time.)

Access to and from St Jude's had been improved shortly before 1883 by the removal of Bull Paunch Lane, described as "the home of dog fanciers, the prize fighters and their trainers, cag-mag butchers and loafers" and the building on its line of Lawford St, which had

> swept away many a vile rookery and den of filth, and let in a wholesome current of air into streets, in passing through which one was glad to hold his [sic] breath or keep a handkerchief to his mouth to escape the noxious fumes of vitiated air issuing from every court and alley and passage.

Mission work, night schools for adults and children, a creche for infants, and other philanthropic enterprises had done something to improve the area from its earlier reputation, the reporter said, and there had been a "decided dimunution" of crime compared to times past. Perhaps he was thinking here of the fatal stabbing in the "Three Horse Shoes" in Gloucester Lane of PC Richard Hill in 1869, an incident which drew tens of thousands to the funeral and passed into popular Bristol legend (e.g. Bristol Evening Post 6 October 1969, "Last Tribute to P.C. 273"; cf Winstone 1970b: pl 104). A contemporary journal described Gloucester Lane as "a place of unsavoury repute, notorious as a den of tramps [a reference to its common lodging-houses, see below] and one of the worst districts in the East end of the city" (quoted in Evening Post article). The suppression of prize-fighting had stopped the all-night orgies which had often preceded these fights (held in the morning), one publican in the area, since retired on a fortune, being said to have frequently taken in £6-£7 in the small hours of the morning on such occasions. It was also said by local inhabitants that "the reasonable restriction of the hours of opening of the lowest class of taverns" had had a more civilized influence than anything else in the area (p.16).

There had been, it was averred - rather incredibly in view of the accounts which follow - "some little diminution in overcrowding", though it was admitted the dwellings of the poor had undergone relatively little change. The British Workman erected in New St in 1874 as part of the New St Mission necessitated the demolition of several houses: out of one small room there were turned out a man, his wife, 4 children, and 14 fowls kept beneath the bed "where the accumulated filth and feculant matter were more than a foot deep"; in another room an old man and woman slept on sacks; in another they kept their donkey (cf remarks in the Examiner); and in a fourth, where the roof was in some places open to the sky, an old blind man slept on the bare boards (pp16-17). "We have improved a little on this", the reporter maintained.

The references (pp16, 17, 27) to "shed-dwellings" in backyards - old sheds and outbuildings plastered over - confirms earlier evidence that part of the slum conditions were caused by the prolification of building in what had originally been back-gardens or open courtyards behind properties; but common dwelling-houses appeared in the reporter's view to be the worst offenders. One property, including the stable at the back, was said to hold 18 families; another property to hold 10 (p.27). In 1871 the city had passed regulations empowering them to deal with houses or parts of houses let in lodgings or occupied by more than one family, but the whole of Bristol was covered by only two inspectors. Courts they were apparently able to deal with more easily, but common tenements were "the black spots of a neighbourhood". One such building in New St was let in single rooms - one was occupied by a man, his wife, five children, and one bed - and entered by a scullery which passed for the kitchen and whose floor was covered by stagnant water, vegetable refuse, and ashes. On this point the reporter took strong exception to a London paper's suggestion of the previous week that large communal dwellings for the very poor accomodating 1,300 people was the solution, noting that in St Jude's those who had managed to move from a tenement to even a two-roomed cottage shuddered at the thought of returning to the former (p.17).

In an unspecified court of two-room houses, each room 10ft by 6-8ft, the toilet in every house save one was in the living-room (p.20); the neighbourhood of Swan Ct, a narrow vennel running between Little Ann and Little George Sts along the SW side of the "Swan with Two Necks" (FIG 174), was an area with toilets in living-rooms (p.27).

In earlier times St Jude's properties had been mostly owned by absentee landlords, and a story was told of a Clifton gentleman who had regularly come in his carriage to three of these properties to collect his rents; but as dilapidation and difficulty in collecting rents had alike increased absentee landlords had become less common, and many of the properties were now owned by people living in the neighbourhood who had "become comparatively rich in trafficking in these sordid specimens of homes of the poor" (p.27). As noted earlier (p.556 above), the last Thomas George pipemaker was landlord of some of the dwellings in the area, though a granddaughter recalls him as being softhearted about collecting rent from his poorer tenants.

Rents appear to have ranged from ca.1s6d to 2s9d a week for two rooms; single rooms ran ca.1s to 2s. A three-room house is noted in Pinnel's Ct costing 2s3d a week. A one-room shanty 10 ft by 6 ft in a court off New St (presumably either River Ct or Burge's Ct) occupied by an old woman, her daughter, and a baby cost 1s; it had no furniture other than a sack bed on an iron bedstead, the walls were damp, and the floor was so wet that the occupants had to sit on pieces of basketwork. This was considered so bad that the guardians of the poor would not give the old woman relief unless she moved to a better place. Two-room backyard sheds of the type noted above, the rooms 8 ft by 7 ft, cost 2s2d a week. In a court off Pinnel St (presumably either Pinnel Ct or Burge's Place) where room after room was occupied by families, an out-of-work cattle-driver, his wife, and five children aged from 9 months to 14 years, paid 1s6d for a single top-storey room; one bedstead and some dirty bedding were their entire furnishings. In Gt Ann St, a man, wife, and their four children lived in a single room for which the rent was 1s9d a week; in Wade St a labourer, his wife, and three children lived in a tenement room costing 1s2d, though it was clean compared with houses surrounding it and even had a picture of a winter scene on the wall. In one court of single-room shanties with stable-doors the rooms were let at 2s6d a week for women in confinement. A room with "an apology for a bed", a bench for a table, two old chairs, some cracked crockery, and a greasy Merry Christmas inscription on the wall (in November) was let as "furnished" at 2s6d a week (cf 1865 description of an East London dockland home quoted in Jackson 1963: 113). An even worse "furnished" room, though not described in detail, cost 3s (pp18-20, 22, 23). Further similar accounts are not lacking in the reporter's survey, and the impression from the Mercury and Daily Post account is of appreciably worse conditions than those observed by the Examiner's correspondent 33 years previously. In 1883 virtually nothing but one- and two-room dwellings are noted, and according to those working in the area there were 400-500 families in single rooms in St Jude's at that time (p.26).

The size of these families was often large, as examples indicated show, and the birth-rate for the area was as high as 42.1 per 1,000 (p.26). Unfortunately, neither death-rate nor population figures for the area are given. Few figures are available for rents in St Jude's in 1859, but those which are - 9d-10d for a single third-storey room and 1s6d-1s9d for three small rooms (see p. 736 above) - suggest rents had approximately doubled by 1883. Squalor certainly seems to have become worse between 1850 and 1883: the three-room home of the widow pipemaker described in the Examiner was said to be reasonably frnished for its locality, but when compared to accounts in the Mercury and Daily Post the description, to say nothing of the number of rooms, has become far better than average. If, as the 1883 account insists, conditions had really improved somewhat in the preceding years, it must have been because of increased relief work rather than any true amelioration. The increase in rents, like the increased overcrowding and squalor, may reflect increased demand for housing from a growing number of people living in poverty; as noted earlier, a comparison between Ashmead's 1828 plan (FIG 168) and the 1903 OS plan of the same scale (FIG 175) shows an appreciable increase of building density between these dates.[105] Social work particularly by Board School representatives, and also by individual persons, went some way to relieving individual cases of extreme hardship. One lady from Clifton had come to live in the area so as to be near her work (p.19), and this illustrates some interesting comments by Latimer. He notes (1887: 443-4) that in 1868 a "novel and interesting movement" was started by Dr John Percival, the headmaster of Clifton College: this was the founding of a ragged school in the St Philip's Marsh area with the teachers being senior pupils from the College. With the Education Act of 1870 the school was handed over to the School Board, and Percival offered to maintain a mission in any area of Bristol the Church Commissioners chose. The result was the founding in 1875 of a mission in Newfoundland Rd (on the opposite side of the Frome from St Jude's) which took a vigorous part in the social work of that area. The College's example was followed by some Clifton parishes, who established missions in the eastern parts of the city; and the lady noted above no doubt came to St Jude's as part of that inspiration. What is particularly interesting is that this movement took place well before the famous Toynbee Hall movement and others in East London from the earlier 1880s, where Oxford graduates went to live and work in the slums there (Inglis 1963: chapt 4). By 1887, the year Latimer was writing, there were at least 16 schools and colleges taking entire or partial responsibility for Church of England missions in working-class parts of London as well as the Clifton College mission in Bristol and those of Rossall in Manchester and Winchester at Portsmouth (Inglis 1963: 29); it may well be that the Clifton College mission was among the very earliest.

Either the above-mentioned lady or another from Clifton had been instrumental, about a year before, in forming the St Jude's Church Society, a comprehensive mission to the area run by members and friends of the congregation of St Mary's, Tyndall Park. A year previously, this lady had gone to see the home of a beggar boy she had apparently met in Clifton, become interested in the poor, and obtained a residence near them, the movement starting from this. The Society ran a day nursery with some 30 infants; a boys' night-school with nearly 50 attending; a men's night-school held in the Wade St National School (FIGS 174, 200) with sometimes as many as 86 attending; Bible classes for women with 150 attending and one for men with a membership of 54; young men's and women's Sunday classes; a work club employing 75 women in needlework, the goods being sold at a shop opened in the district; a working party of ladies making, collecting, and distributing clothing; and district visitors. The work was done by ladies from Clifton and Redland and medical men and other professional people took the evening classes after their day's work (p.25).

As with his predecessor from the Examiner 33 years before, the Mercury and Daily Post's reporter found it was the women and children who were often the real wage-earners in the family (pp18, 27-8), the men frequently being shiftless, or drunk, or simply not giving their wives more than a pittance even when earning a steady wage. Typical examples of Victorian cautionary and moralizing tales are included. Among them were a smith (p.26) who could earn 32s a week but drank, so that he, his wife, and five children lived in one room, and when visited the wife had to be covered with a piece of carpet before the reporter could visit there (this was in Gloucester Lane, on the opposite side of Lamb St from Wade St); the reform of drunk parents to establish a cheerful home and decently-clad family (pp22-3); a healthy, well-fed labourer earning 18s-21s a week but living in a ca.10ft-square room with almost no furniture, with six small children, and a wife nearly dead with overwork and underfeeding (pp21-3); a labourer who could earn 18s a week at the Quay but got little summer work nevertheless keeping his four children clean, his two roomed-cottage limewashed outside and wallpapered inside, full of furniture, with pictures on the wall, his wife joining with the wife of a similarly tidy labourer next door to buy and clean flour bags and convert them to underlinen and sheets, from which they also made their own clean bedding, the whole compared to their next-door neighbour, who despite earning 16s6d a week as a labourer, was living with his family in miserable squalor (p.18).

The reporter applauded "Working-man", who had written a letter to the Mercury and Daily Post after reading the articles on St Jude's, when he expressed his disbelief in indiscriminate almsgiving and urged the poor be found work, given better habitations, encouraged in thrift and sobriety, and educated; but rebuked him when he said he hoped the publicity now being given to the plight of the poor would "rouse the people to clamour for their rights, and our opulent classes to do all they can to uproot the upas tree" (p.21). The reporter also noted with approval comments made by Mr Fawcett the previous week at Reading, that deeply as he sympathized with the suffering disclosed

> I feel more strongly than I can express that all that is bad now will become intoleraly worse if anything is done to

> weaken the great and sacred principle of self-reliance, or if anything is done to encourage men to believe that they have the right or the power to throw upon others the cost of maintaining either themselves or the children they are responsible for bringing into the world (p.22).

It is easy to dismiss this as characteristic Victorian paternalism, but it was an outlook of others who had far more practical experience with the poor than had the Mercury and Daily Post reporter. Samuel Barnett, vicar of another St Jude's, in Whitechapel, and Warden of Toynbee Hall from 1884, declared classes must exist because

> A body in which every member is a hand could do no work, and a city of one class would have no life....Their unity [that of rich and poor classes] means strength, their division means ruin (Inglis 1963: 171, quoting S.A. and H.O. Barnett Towards Social Reform, 1909);

and on another occasion the Barnetts maintained

> Poverty is a relative term. The citizen whose cottage home, with its bright housewife and happy children, is a light in our land, is poor in comparison with some stately mansion. But his poverty is not an evil to be cured. It is a sign that life does not depend on possessions, and the existence of poor men alongside of rich, each of whom make [sic] up the society of the earthly paradise (Inglis loc. cit. quoting S.A. and H.O. Barnett Practicable Socialism, new series 1915)

and asserted what had to be cured was the poverty which degraded human nature and prevented the ordinary man enjoying the attributes with which he had been born. Elsewhere again, Canon Barnett recorded

> Universal experience goes to show that without a master the ordinary man does not work. It seems as if it were necessary that a man should be under authority (Inglis 172 quoting Commonwealth May 1896).

As Inglis says (loc. cit.), settlements such as Toynbee Hall were a late expression of the earlier belief that "the good society would be achieved by beneficient gestures from the leaders to the led"; socialist leaders such as George Lansbury,[106] like Barnett an Anglican, were bitter about this outlook (Inglis 172-3).

According to the Mercury and Daily Post's reporter, staple occupations in St Jude's were pipemaking, sack-turning and -darning, stick-chopping, clothes-washing, fancy-mat making, manufacturing whitening balls, and match-box making, all of which were done by the women of the area (p.23).

Sack-turning and -darning brought in 1s6d for six dozen, out of which thread had to be bought and railway carriage of 2s (from or to where it is not stated) paid (p.23); this was the occupation of the wives of two labourers noted aove, buying "American flour bags" from large flourmills at 2s3d a dozen, cleaning them, and selling them at 2-1/2d each to be made into underlinen and sheets (p.18).

Whitening was made in a pan, formed into balls, and baked over a cinder fire (p.22); its manufacture, as noted in 2: VII, was often a sideline of pipemaking. Pipemaking is only given the one passing mention: as noted above, the bottom had fallen out of the industry in Bristol in the earlier

1860s, and by 1883 only five businesses were listed in the directory. Of these five, four were in St Jude's and the fifth, Ring, was at Temple Back. The four St Jude's businesses were those of Thomas George of Gt George St, a Mrs George in New St (a relative of Thomas George, who earlier had also been at the New St premises), Thomas Roberts in Gt George St, and Sarah Williams in Lamb St. All three families were old-established pipemaking businesses which had managed to survive the crash of the 1860s; the earliest makers recorded in each family had each become free in 1812.[107]

Mr Frank Wyatt, father of the present landlord of the "Cherry Tree" in Pipe Lane at Temple Meads, lived in the St Jude's area as a youngster and recalls it at the turn of last century as a terribly run-down and generally seedy area, the pipemakers being all somewhat ill-kempt individuals who took their wares round the local pubs in large baskets (this must refer to journeymen makers; the proprietors of the businesses surviving in the area at this time - virtually only the George family and Thomas John Corcoran of the "Swan" - would have been a cut above their workmen). Mr Wyatt recalls a rhyme current at the time and apparently used by the pipemakers:

'Alf a pint of 'alf 'n' 'alf,
Please to blow the froth off;
'Alfpenny screw in a farthin' pipe,
Father'll pay thee Sa'urday night

(I owe this information to Dr Roger Price of Bristol City Museum, in litt. 1 August 1974). As noted earlier (p.171 n.26-), the "'alfpenny screw" refers to tobacco-dispensing machines which for a halfpenny gave a screw of tobacco and which were often in pubs of this period. As for the farthing pipe, Corcoran was advertising in 1892 "assorted cutties" (presumably wholesale) at 1s a gross (p.398 above) - that is, 1d a dozen - so a publican selling them at even 1/4d each was making a 200% profit assuming the transaction involved no overheads.

If pipemaking had declined since the Examiner's correspondent had visited the area, the other major industry of the area to which he referred, the production of kindling, had not. However, "The keen competition in every branch of industry in these days" had deprived this trade of much of its supply of wood, sugar-casks and packing-cases from unloaded vessels in many instances being eagerly sought by handicraftsmen and turned into "gipsy tables" and ebonized and gilded or covered with silk and plush and gay fringe to adorn the rooms of the well-to-do (p.24). As with the Examiner's correspondent, in nearly every case the Mercury and Daily Post's reporter saw it was the women and children who did the chopping and bundling, though there was "one industrious man sawing away at some heavy timber for his wife to chop in the morning" (pp18, 19, 24); as also noted in the Examiner's account, women in the area were employed to hawk the firewood (p.22), though no prices or wages are noted by the Mercury and Daily Post. Frank Wyatt recalls earning a few coppers chopping and bundling wood at the turn of last century for the pipemakers to use in their kilns (presumably as kindling; the kilns must have been coal-fired).

The other staple industry in St Jude's in 1883 appears to have been producing matchboxes. As noted earlier, this occupation was described among those of the area in the Examiner, but at that time was said to be a minor business. According to the Mercury and Daily Post account the woman making Elfin matchboxes (the brand name of the matches) were paid 2d a gross "binding them up in bundles of three dozen, finding their own string and flour for pasting on the ornamental paper and the picture of an aerial sprite winging its way through the clouds". Thus, even if a woman made as many as 20 gross (2880) boxes a week she could earn only 3s4d - and out of this she had to buy her string and flour. These figures indicate there had been no change in wages since the Examiner account of 23 years before, for there also 2d a gross was the pay-rate and 3s-4s the weekly wage. As noted when discussing the Examiner's evidence, the pay ca.1900 of East London matchbox makers was 2-1/4d a gross.

Other occupations noted included manufacturing wooden butcher's skewers, at which occupation a man in a top room in a court off Little Ann St supported his wife and four children, being paid 1s3d a thousand skewers, out of which he had to find his own wood (p.18); making gaily-coloured toy balloons from bladders, which was one woman's way of attempting to keep herself and two children (p.20); and the producing sweets on a grimy bench in a dingy room in a court off New St, from where they are hawked on the streets by the man and his wife (p.29).

Some extreme cases of exploiting child labour were recorded. A nine-year old boy, for example, was dressed as a negro minstrel by his foster-parents and taken round as many as 40 public houses a night earning money by singing, the foster-parents waiting outside to take the money from him. In this manner he averaged 3s6d a night and 5s on Saturday nights, an indication of how valuable a source of revenue such children could be. The School Board officer was diligent in tracking down such children and obtaining detention orders for them to be sent to schools, but frequently the parents took the child away and disappeared from the area for a fresh field to work. In other instances children were sent to meet the cattle-boats and work in the cattle-market every Thursday and were sometimes up all night, and half the average attendance at the River St Board School was known to sell articles in the streets at night - children of five and six were noted out to 10 or 11 at night even in winter (the reporter commended the new regulations recently formulated by the Watch Committee and approved by the Home Secretary, that all children under eight were to be prohibited from street-selling and those under thirteen limited to 9 in the evening April-October and 8 in October-April) (pp27-8).

In 1850, the Examiner's correspondent had made only the briefest reference to remedial work in St Jude's, and that à propos of the area's common lodging-houses where he said visits by city missionaries and government inspectors had effected some improvement though there was urgent need of more. By 1883, however, there were a number of societies active in the St Jude's area. Apart from the St Jude's Church Society whose work is described above, there was the BCM's Gt Ann St Mission noted earlier and described by the Mercury and Daily Post correspondent as doing "a grand work". Initially, the BCM was said to have begun with cleanliness first and later godliness, the verminous children being washed and having their hair cut before joining the Mission's night-school. In winter there were 160 girls and 100 boys attending the weekly night-school, there were Bible-classes for all ages, visits to the poor who were taught in their own rooms, and services in the Mission Room (p.31).

The Bristol District Nurses' Society was active seeking out cases of illness among poverty-stricken families; and the Red, White, and Blue Ribbon Gospel Temperance Army working from the Pennywell Rd Mission Hall helped many families, ran a children's Sunday School, and held services all run by working men in the common lodging-house kitchens. Stapelton Rd Congregational Church, itself in a working-class area, ran the Brick St Mission (FIG 163), a Clifton gentleman having helped them ca.1873 purchase two of the slum tenements on the street to convert into the mission building. This Mission did relief work, supplied clothing, and gave religious instruction (p.31). Elsewhere (p.30) it was noted the Mission had sent an elderly woman of the area on a trip to Weston-super-Mare, to her great enjoyment.

There was also the New St Mission, noted earlier as started in 1866[108] by Friends converting their Poorhouse in New St. Their Schoolroom (presumably in the former Poorhouse) subsequently became a Board School, but in 1868 they founded a ragged school, and a British Workman, as mentioned earlier, was opened in New St in 1874. A Friends' Mission's "Thieves' Tea" at Major Tireman's chapel in Unity St in 1865 was also noted above, and indicates interest in social work in the general area even before the New St Mission was started. The latter held religious services and ran Sunday schools, Bible classes, and mothers' meetings (p.31).

Like the Examiner's correspondent, the Mercury and Daily Post reporter commented on the common lodging-houses of the area. There were, he said, ca.30 of these places in St Jude's holding from 10 to 70-80 persons a night. They were apparently much different by 1883 from what they had been formerly when there had been fewer restrictions on sleeping accommodation and mixing of sexes in the case of single people; and the various gipsy kitchens, thieves' retreats, beggars' homes, and kitchens for "tramps and 'travellers', with secret signs and codes little understood by the outer world of respectability" had largely disappeared. The best lodging-houses were places of "luxury and cheerfulness" compared to many of the dwellings in St Jude's, their kitchens well lit with gas and well heated by a blazing fire three or four feet across, their dormitories with 20 beds to a room thoroughly clean and well ventilated. Fried chitterlings, pork cuttings, black puddings, red herrings, sprats, bloaters, liver and bacon, steak and onions, were all listed among the foods brought in by the lodging-house inhabitants, suggesting some of them lived appreciably better than many others in St Jude's. The usual array of inhabitants occurred in such places - "Men of education, who have graduated at Oxford, ministers, ex-scripture readers, schoolmasters, town councillors from distant places" were all to be found (pp30-1). This description suggests an improvement in lodging-house conditions since the Examiner's reporter had observed them in 1850, but the Mercury and Daily Post writer may have painted an over-rosy picture of lodging-house life (cf below). However, as Samuel points out (1973: 127-8), even hostile observers sometimes had to admit the atmosphere was sociable: companionship, a need too often not realized by social reformers (Young and Willmott 1957: 198-9, 1962 ed; T. Cullen 1965: 244-5, 1966 ed), and warmth were there - accounts always seem to mention a roaring fire - and "ale, porter, porridge, beefsteaks, cow-paunch &c.," were noted as the food in an account of an Ashton-under-Lyme lodging-house in 1844 (quoted in Samuel 1973: 128). Prices ranged from 1d to 3d a night in the mid-C19 according to Samuel (loc. cit.), and from 4d to 6d later in the century, so the prices charged in Bristol lodging-houses - 2d or 3d a night in 1850 (see p. 744 above) and 2d for half a bed or 4d or 5d for a whole bed in 1906 (see p.754 below) - appear to have been typical for their time. However, Samuel notes that even these prices were expensive for poorer travellers, who used the lodging-houses only when they were flush and Casual Wards and Refugees, which were free, when they were out of money.

Neither the Examiner nor the Mercury and Daily Post accounts of Bristol slum life can be compared to the major surveys of London slums and poverty appearing about the same times - Beames and Mayhew ca.1850, for example, and Booth in the 1890s - but aside from their purely local interest they indicate that the increasing concern about working-class conditions by the mid-C19 was country-wide and that Bristol was by no means behind in this awareness. Indeed as noted earlier, the BCM was founded in 1826, nine years before the London City Mission, and is possibly the oldest city mission in the country; and Clifton College had started a mission working in various east Bristol slums in 1868, long before the famous university missions in East London were started in the 1880s. Again as noted above, Bristol Friends were active in social work at least by the mid-1860s, contrary apparently to the general run of C19 Friends' societies. There is ample evidence to suggest an examination of Bristol social and mission work in the C19 would yield rich and unexpected information: such work is almost invariably thought of as London-oriented, and specifically - at any rate from the 1880s - East London, probably because of the famous studies by Mayhew and Booth and other writers and because of the Salvation Army and Jack the Ripper. Keating (1973: 585) quotes Walter Besant talking to a Birmingham audience in 1884 on "Art and the People" and beginning

> As regards Birmingham, Manchester, Sheffield, Glasgow, and any other places where there is a great industrial population, I know nothing. If, therefore, exception be taken to any expressions of mine as applied to some other city, I beg it to be remembered that East London alone is in my mind.

By the time Besant was writing, this was a perfectly understandable view, for East London had become the symbol of urban poverty and, as Keating says, "the natural, virtually inevitable, point of reference for anyone wishing to place the urban working classes". Even in Victorian fiction, with the exception of a brief period in the late 1840s when Manchester was the setting for stories of industrial conditions, London was the usual setting for stories depicting social problems, with Besant himself responsible for the "discovery" of the East End from 1882 (Keating 1971: 17, 105, 93, and passim). As noted earlier, the BCM's minutes of meetings are available, and records of other missions, either in the form of separate records or in the records of parent organizaions such as Clifton College and various churches no doubt also survive; the collections of Friends' records (Mortimer 1967: 22; 1971: x-xvi) probably include information on their New St and other Missions, and the St Jude's area property-deeds no doubt have relevant information.

Subsequent contemporary accounts of St Jude's are few and generalized. A January 1903 issue of The New Penny Magazine included a brief article contrasting St Jude's and Clifton by "Our Special Commissioner". This article, as noted earlier, is useful chiefly for two illustrations of Gt George St and one of Grace's Ct off Gt George St (FIGS 170, 193-4); but there are also comments which suggest there had been little change in the area from earlier accounts. Stables for donkeys or ponies are noted in backyards the only entrance to which for man or beast is through a passage in the house, which harks back to the Examiner remarks in 1850 and suggests the carrying trade was still a St Jude's occupation; and there was frequent evidence of wood-chopping still being another occupation - again, it was noted as a woman's job, and children being sent out to sell it. The letting of rooms was still universal in the area, occupiers being said to be "hawkers, dock-labourers, and others". A furnished room cost less than 8d a night, typical furniture comprising a bed, table, two chairs, and a lamp, with sometimes a few pots and pans. Gt Ann St had a number of signs "Good Accomodation for Travellers", but Gloucester Lane was the major centre for vagrants' hostels; and the Glouceser Lane district (on the opposite side of Lamb St from Wade St) was said to be the principal Bristol slum (Anonymous 1903: 448-50).

Arrowsmith's Dictionary of Bristol (2nd ed 1906) describing the common lodging-houses, noted they occurred particularly in Gloucester Lane, Lamb St, and Gt Ann St, and suggests conditions less pleasant than those described in the Mercury and Daily Post in 1883. The charge for half a bed was 2d a night, and for a single bed 4d or 5d. There were 8-12 people to a room which gave warmth, necessary because windows were sometimes broken. There was a living-room/kitchen with a brick and sawdust floor and a large fire; washing facilities were often a tap in the yard. The City Council's Health Committee in 1899 had recommended they be empowered to build a municipal common lodging-house four storeys high to house 120 people (FIG 187). This, since 1964 the Salvation Army hostel Redwood House (Whuer in litt. 18 June 1974) (FIG 188), was opened in 1905 at a cost of £7,000 excluding the furnishings. It took men only, charged 6d a night, and had individual accommodation - a cubicle with door and window (FIG 209). Lodgers had to bring their own food (FIG 210); facilities included a reading-room (FIG 211), a large dining-room, 120 lockers, and in the basement linen stores, baths, and a laundry (FIG 212) (Anonymous 1906 ed: 113-5; Stone 1909: 105-7). (Mansfield House, a Congregational settlement along the lines of Toynbee Hall started in East London in 1890, opened a lodging-house there in 1893; nightly charges there for beds were 3d to 6d (Inglis 1963: 166), suggesting the Bristol Health Committee's charge for their lodging-house in St Jude's and its superior facilities was not excessive.)

The existence of the degradation and squalor described here can only be properly understood in relation to costs such as 2d for half a bed in a common lodging-house as the C19. According to the reminiscences of an 80-year Bristol publican (Bristol Evening Post 20 October 1969), when she started in the public-house business in 1908 beer was 2d a pint and a large whisky was ca.3d: one can thus see the truth of the old adage "drunk for a penny, dead drunk for twopence" for a few decades earlier, and understand that with 2d for half a bed, say 6d for some food, and perhaps 4d to drink himself into oblivion, a man could exist on 1s a day; and in the conditions described it is not to be wondered tha so many did drink to excess.

In 1907 the Bristol Housing Reform Committee published a report entitled Bristol Hovels (Cooke 1907) which contained a few remarks related to the St Jude's area. This committee had been formed earlier in 1907 by Labour members of the Council and several Socialist and working-class organizations following what was felt to be an unsatisfactory reply - that "statutory overcrowding was not common in Bristol" and that preventable disease was not rampant in allegedly overcrowded homes - to complaints raised by councillors. Figures were produced from the Medical Officer's report for 1905 to show that the registration sub-district of St Philip population density per acre was 66.0 (48,639 persons in 736 acres) and that this was by far the highest concentration in the city, Bristol Central being next with a density of 51.6. Clifton by contrast had a density of 29.5. The maximum density for healthy life in a city was given as 25 per acre; Bristol's overall figure of 20.73 was achieved only by virtue of Stapleton having a density of 9.3 per acre and Westbury-on-Trym having one as low as 1.9 (pp4-5). Again, Bristol's infant mortality rate was 122.4 to every 1,000 births, well below the average of 140 for the 76 largest towns in the country, but in the sub-district of St Philip the figure was 142.4 (in Central it was 155.1) whereas in Clifton it was 98.2 (p.6). Regarding deaths from the seven chief epidemic diseases - smallpox, measles, scarlet fever, whooping-cough, diptheria, fever (typhus, enteritic, etc), and diarrhoea - and tuberculosis, St Philip was consistently in the top three areas, as was St George sub-district, which was part of the old out-parish of St Philip and Jacob east of St Jude's (pp6-7).

There follows the report of investigations of six districts undertaken by members of the committee, which probably caused some embarrassment when submitted to the Council (two houses in a court of six which shared two water-closets, one water-tap, and one wash-house had a notice "To Let! apply Peter Addie Council House"); but unfortunately none of the districts were identified (it was said that in at least one case a landlord had warned his tenants not to co-operate with the inquiry), so that it is uncertain if St Jude's was even included. It may have been district 5, for slaughter-houses are mentioned and as noted earlier these existed in St Jude's: the description suggests severe overcrowding compared even to the other districts - nine-roomed houses with 15 and 18 inhabitants, six two-roomed dwellings housing from 5 to 11 people for example - and could well be of the tenements and common-lodging houses in St Jude's. Certainly as described (pp11-12), it is by far the worst of the areas examined, and St Jude's was generally held to be Bristol's worst slum.

About 1930,[109] the Bristol Churches Tenements Association Ltd published a booklet outlining work so far accomplished and their plans for future work entitled Homes - As They Are and As They Will Be (Anonymous n.d.[26]). The Association's big plan was the conversion of a large premises in New St into 23 flats - as already noted when discussing the Friends' Poorhouse the building illustrated in the booklet (FIG 190) is almost certainly the school formerly, or else rebuilt on the site of, the Poorhouse, and the conversion is presumably the present New St Flats. Building conversions they had already made were in Orange St, St Paul's (behind Newfoundland St) and Albion Pl - earlier Union Pl (FIG 175, the 1903 plan) - off Redcross Lane, Redcross St, just across the road from New and Lamb Sts; and at time of publishing they were working on property in Cohen's Bldgs, Baptist Mills and Byron St, Newfoundland Rd (also at Baptist Mills). Whether they subsequently did other work in St Jude's is at present unknown, but their rents for their houses and flats of 10s6d-13s including rates are useful for comparison with rents for slum property in the same general area at this time given below. (There are before-and-after pictures of the Orange St (pp4-5) and Albion Pl (pp12-13) properties). The Albion Pl work was paid for mostly by contributions from All Saints, Clifton, suggesting the charity work by Clifton churches started ca.1870 and noted by Latimer and the Mercury and Daily Post reporter (see above) continued at least to ca.1930.

About the same time as the Bristol Churches Tenements Association Ltd published their booklet - 1930 - a survey of housing needs in Bristol was prepared by H.R. Burrows, Lecturer in Economics at the University of Bristol. This was published the following year by the Bristol Branch of the Garden Cities and Town Planning Assocation (Burrows 1931). St Jude's - defined here as the area bounded by Old Market St on one side and the Frome on the other, and therefore covering a larger area than pipemaking St Jude's - was found to be the most crowded of all the areas examined in Bristol, and was still marked by the letting of so-called furnished rooms. In many cases it was found tenants had furniture of their own, but had to rent furnished rooms because of lack of alternative accommodation; this suggests a change from the mid- and later C19 accounts where furnished rooms appear to have been rare, though The New Penny Magazine account in 1903 indicates furnished rooms were being advertised in St Jude's by that date. As with the Examiner account of 1850 the presence of large and formerly well-to-do houses now overcrowded, dilapidated, and damp was noted - this must refer, as did the 1850 account, to the Old Market St area of the old in-parish of St Philip and Jacob.

Three sample cases of bad housing are given. As locations are not indicated it is not known whether they were in the St Jude's pipemaking area, but they are probably representative enough of standards there. One house, with an attached cottage built in the backyard, contained 12 rooms sub-let "in more or less furnished portions" to 45 people comprising 10 families, rents ran from 5s to 11s. The premises was gloomy and damp, plaster was falling off the walls, the stairs were steep, dark, and dangerous. There was one outside water closet, one outside water-tap, and a practically unusable wash-house.

The second example was a very bad house, condemned but reopened to house occupants of an even worse structure. Two families, comprising 14 persons, occupied the six rooms at a total rent of 13s. The third was a house with five rooms and two garrets, occupied by four families. Two men rented one room for 5s, a family of seven rented two rooms for 6s, a family of eight occupied one 12 ft-square room and two garrets for 8s. The ceilings were cracked and in places bare of plaster; the stairs were dark, rickety, and dangerous; the kitchen roof let in light and rain; there was no yard and no wash-house facilities (the tenants used the Municipal wash-house at a cost of 2s). A survey of ability to pay higher rents for houses in new areas indicated that, on the basis of earning of the head of the household, 2% could move, and on the basis of total family earnings, 18%. These figures were comparable to those from people in other poor and slum areas (pp12-13). Six illustrations of slum housing are included in the report, but unfortunately their locations are not given.

The overall impression from these earlier C20 accounts of or including the St Jude's area is certainly not one of improvement compared to conditions in the second half of the C19; and the impetus of later Victorian philanthropy, the continued work of the BCM (D.W. Edwards 1927) and the Bristol Churches Tenements Association's New St project not withstanding, appears to have passed. Historically, this social work fulfilled an important task in awakening and developing social concern; but its limitations were that it too rarely progressed beyond the outlook typified by the Victorian hymn-writer Cecil Francis Alexander (1823-95) when he suggested the rich man at his table and the poor man at his gate had been made high and lowly and that God had ordered their estate. Certainly the provision of housing does not solve slum mentality - "Razing a slum", as Dyos notes, instancing the Wild St area off Drury Lane which 30 years after the once-fashionable houses in Wild Ct had been cleared in 1855 together with 150 cartloads from cesspits and 350, including a ton of bugs, from basements, and after innumerable charitable acts was still firmly occupied by the very poorest, "was not a final act of reparation" (Dyos 1967: 15); and the model lodging-houses built in Spitalfields just before and in the wake of the Jack the Ripper social concern in places such as Flower and Dean St, Thrawl St, and Lolesworth St (Bezodis et al. 1957: 248-50) are still the seediest part of Spitalfields - but equally certainly the later C19 philanthropy in St Jude's did nothing beyond paper over the worst accomodations and shore up the worse cases of poverty. Descendents of the George family recalled visiting "gramps" - Thomas George III - on Sundays after church dressed in their Sunday best, and how embarrassed they always felt walking through the area with seemingly all the inhabitants sitting on their doorsteps watching them: anyone who has ever visited slums with particularly depressed occupation will immediately recognize the feeling - this writer has observed it on a Sunday morning in St Philip's Marsh and at night in the Negro area of New Orleans. In fact it was not until the early 1930s that the city started systematically to clear the St Jude's pipemaking area, and then it was by compulsory purchase order; descendants of the George family recall the last Thomas George pipemaker retained the deeds to the family's 38 Gt George St property as a gesture of anger at the unsatisfactory price paid him for his property, and the deeds are still in private possession.

Prior to this time, it is unclear what action the city could, or at least did, take to ameliorate conditions. From 1871, as the Mercury and Daily Post reporter noted (see above), the city had had regulations concerning houses or parts of houses let in lodgings or occupied by more than one family, but the whole of Bristol in 1883 was covered by only two officers, and while doubtless an examination of city records would indicate the origin and development of this work and the powers the officers had, it seems from the St Jude's evidence that if they had an effective powers the application in St Jude's failed. As early as 1850 the Examiner had noted city missionaries and government inspectors had made some improvements to conditions in the common lodging-houses but that further improvements were urgently needed; subsequent accounts offer no convincing evidence that any real improvements occurred in the C19, whatever the Mercury and Daily Post reporter felt had been achieved in the years preceding 1883.

The same reporter noted (Anonymous 1884: 20) that a landlord had been told to lime walls on his property, but it is not indicated who told him and by what authority, nor whether it was even done. Elsewhere (p.27), the reporter noted that a second visit to some properties since the appearance of his first reports indicated landlords had been busy with lime and ochre, suggesting either that some could be embarrassed into making token improvements or that revelations could result in official action being taken. It is clear too, from the same reporter's accounts, that Board School representatives were trying to enforce school regulations and stop the exploitation of child labour, though often with little success. That the city's Health Committee in 1899 could successfully ask to be empowered to erect a municipal common-lodging house in the area indicates the city had some powers; and there were apparently powers to condemn property as unfit for human habitation, for property-deeds for 11 Wade St and 1-5 Milsom Ct directly beside it (BAO 14018) indicate this property - the landlord of which was regretably a cleric, one the Rev. Herbert Tanner - was so judged in 1915. Number 11, between the Salvation Army hostel and Gt George St - on the site of the brick warehouse in FIG 201 - was noted in 1714 and 1716 as being rented by Wade; it would not be surprising if it had remained substantially unaltered for the following 200 years. Milson Ct may have been a subsequent backyard development, but it is marked, though not named, by Ashmead in 1828 (FIG 168). However, even this drastic step was not necessarily permanent, as witness the 1930 reference to a condemned house being reused to take people forced out of even worse premises (Burrows 1931: 13).

Although started in the early 1930s, clearance of the St Jude's pipemaking area is still not completely finished, WW II interrupting the work. However, as noted above, few pre-clearance buildings now survive, and the area SW of Wade St has been largely redeveloped with multiple corporation dwellings themselves of various vintages. In the process, the 250-year old road layout has been somewhat modified, Pinnel St having disappeared and Gt Ann St no longer running to New St but terminating at Eyer's Lane (FIG 178).

However, a decade before systematic clearance of the area had begun the George family had fired their last kiln and the 300-year Bristol pipe industry had closed. The Bristol Evening News of Friday 9 December 1921 described three generations of the George family at the firing of the last kiln that morning. (The eldest was Thomas George III B 1847 and then aged 74, great-grandson of the founder Thomas I, described as "still hale and hearty notwithstanding the fact that he had never had a holiday in his life" - when he died in 1935, he was 88; his son Thomas IV B 1872, the last Bristol pipemaker, lived to be 96 and died only in 1968.) The following

Monday, 12 December, the kiln was to be emptied and dismantled and the last firing of pipes added to the nine months' stock the firm already had on hand. Thus ended Bristol's clay tobacco-pipe industry, after a continuous history of at least 302 years.

CHAPTER 7

Summary and Conclusions

SUMMARY AND CONCLUSIONS

One conclusion of this study is that, not unexpectedly, much work could be done on a number of aspects touched on and a number of new avenues could be explored.

As noted in 1: III, a modern critical study of the large amount of literature relating to smoking both in Britain and elsewhere is badly needed. Dickson's Panacea or Precious Bane: Tobacco in Sixteenth Century Literature (1954) is a scholarly work but is virtually confined to the C16; an extension on similar lines into the C18 covering Britain and Europe would be useful updating of Fairholt's Tobacco: Its History and Associations (1959), Apperson's The Social History of Smoking (1914), and Corti's A History of Smoking (1930, 1931 ed). These last three works - Fairholt and particularly Apperson for Britain, and Corti for Europe - deal well with the social history of smoking, but this specific field could probably benefit from another examination. The various sub-sections in 1: VII (Methods of Taking Tobacco) indicate that most of these topics would repay detailed examination - in particular, the introduction of cigarettes and of brier pipes, though occurring as recently as the 1850s, is obscure and already in the realm of legend. The history of neither meerschaum nor porcelain pipes has been touched.

Chapter 2 is one of the most important sections in this study. For the first time a comprehensive examination has been made of Western European clay pipe manufacture and its spread from England to The Netherlands and thence to Germany, Belgium, France, and the Scandinavian countries. Not only have detailed first-hand accounts of manufacturing methods used by two British firms, two German firms, one Dutch, and one Belgian been given but an examination of literary and museum material has revealed much hitherto unknown evidence for manufacturing techniques and the tools used. A few more recondite British encyclopaedias were not consulted for reasons of time or accessibility and the same applies to similar French material, and presumably there are Dutch, German, and Scandinavian sources existing which have not been tracked down; but it is believed this study of manufacturing methods and their history is a definitive one.[1] A comprehensive study of the clays used in Western Europe for pipemaking is still, however (see 2: IX), to be undertaken. The distinctively North American stub-stemmed pottery pipes (2: VIII) form a separate industry of their own which still awaits a major study.

Chapter 3 was originally intended to be no more than brief background studies of the pipemaking industries in various Western European countries to supplement the discussion of manufacturing techniques in these countries (Chapter 2) and generally to orientate the reader. It grew mainly because it was found that information was frequently available only in obscure or even unpublished sources, and because it was felt this section could be a useful repository for collected data which might provide future researchers with a base from which to start. In the case of Britain, the rapid and continuous increase in research in the field of pipe studies should enable a general synthesis to be attempted in the near future, and in fact Oswald hopes to prepare such a work with the aid of a number of workers involved in regional studies [this has since appeared - see Preface]. Chapter 3 Section I is therefore only a brief account of some of the more recent results of studies plus hitherto unrecorded evidence gathered in the course of the principal research for this thesis - the material relating to the early history of the Westminster-London pipemakers' guild, for example.

In the case of the Dutch industry (3: II), the main work is still Helbers and Goedewaagen's Goudsche pijpen (1942), though it is out of print and now scarce and deals only with Gouda, the principal manufacturing centre. Further, it illustrates no bowl forms, and Friederich's various articles (1964a-d; 1970) do not form a wholly satisfactory basis for attempting a typology. This writer knows of no work being done by Dutch archaeologists on pipes, though presumably pipes must be turning up plentifully on Dutch post-medieval sites and shipwrecks. In view of the frequency with which Dutch pipes are occurring on North American historical sites a comprehensive survey of Dutch pipe material would be extremely useful.

To this writer's knowledge, nothing has been done in Germany (3: IV) to study pipemaking there. The Westerwald industry, which appears to have been the biggest, is totally unstudied and its origins - other than what is deduced in this study from linguistic and technological evidence - unknown. As with pipemaking elsewhere in Germany, present evidence comes from incidental references, normally from Dutch sources. The presumptive origin for the Gottfried Aust stub-stemmed pottery pipes which may have inspired the United States pipes of this form (noted above) is totally obscure but must lie in Germany or at least in Central Europe, and this field promises to be a whole research topic in itself.

In Belgium (3: IV) Lefrancq has published good preliminary articles on a couple of aspects of pipemaking there (1970a; 1970b), and it is much to be hoped that he will be able to produce the comprehensive studies which so far have been lacking and to publish his extensive list of Belgian pipemakers of the C17 to C20.

After preparing the section on the French industry (3: V) in draft the writer revised it to include Jean-Léo's research published in his Les pipes en terre françaises (1971). The greater part of this book is an invaluable and well-illustrated catalogue raisonne of the Gambier firm's products together with a number of other firms' catalogues, excellently reproduced; it does not wholly live up to its title in that it does not present a definitive study of the French clay pipe industry, but it does produce much evidence hitherto unknown to this writer. On the other hand, the writer has considerable data apparently unknown to Jean-Léo. The combined material, presented in condensed fashion here, may enable a major study of the history of French pipemaking to be started by some interested scholar.

So far as this writer is aware, nothing has appeared on Swiss pipes since the late C19-early C20 articles noted in 3: VI, most of which sought to prove a Roman or similar origin for the extremely interesting metal pipes used there at one time. As indicated in 3: VI, these pipes must have a Dutch-German inspiration and probably date to the later C17 and the C18; but their social history, their origins, rise, and decline, and everything about them is at present totally unknown and clearly form another major research field.

The Scandinavian studies of pipemaking in Norway (Pettersen and Alsvik 1944), Denmark (Kristensen 1959), and Sweden (Puktörne 1968) on the other hand suggest that the minor industries in these countries, as well as the pipe material itself, have been well studied. So far, little archaeological application of pipe finds has been made, but Puktörne notes their usefulness at the Varberg excavations and we may expect more reports to follow with description of pipe finds.

All in all, therefore, it can be seen that the Dutch, German, Belgian, French, and Swiss pipemaking industries at least would well repay a major investigation.

Chapter 4, as noted in its Introduction (4: I), was written to see what recurrent features might be discernible from brief studies of various pipemaking centres and how these might relate to the detailed study of Bristol pipemaking. As the Conclusions section (4: VII) indicates, this did prove worthwhile. Further, a considerable amount of data, particularly relating to trade in or to North America and therefore not readily available to British readers, was collected and presented here, again as a hopefully useful source for anyone interested in making detailed studies of pipemaking in any of the centres discussed. The Liverpool industry (4: II) is as yet totally unstudied; and though there is an extensive coverage of Chester makers in G.C. Spence 1942 and a few drawings of marks, bowl forms and dating and the origin of the elaborately-decorated stems and the Chester export trade all still await study (see 4: III). So too does the question of whether Liverpool or Chester invented the idea of moulding makers' names and places of work on stems. (Regretably, R. Wilson of Chester who was working on the industry there died in 1968.) Glasgow, the chief supplier to North America of clay pipes in the C19 (4: IV), was examined in somewhat more detail than the other centres, and a list of 107 Glasgow pipemakers and pipemaking firms covering particularly the C19 was prepared and appears in Appendix VII; this should be of considerable use to archaeologists in North America, but may also stimulate a more detailed study of the Glasgow pipe industry or of its trade abroad last century. A particular interest of the Montreal industry (4: V) is that it was established by Irish immigrants coming to Canada as a direct result of the Potato Famine in Ireland in the 1840s; its partial migration in the 1870s to Detroit is an interesting example of bodily movement of businesses and families over a considerable distance in an attempt to establish a better market. The studies of Scottish and Irish tobacco consumption, with their economic and social ramifications, promise to be whole topics in themselves.

Although the data presented in Chapter 5 is in many ways sketchy, it is an important contribution in that it gathers together information on prices and wages over a considerable time period and much of the country a compilation which has hitherto not been attempted for items such as pipes. From the evidence it has been possible to make some observations on the social and economic status of pipemakers, particularly in the C19 when the pipemaking industry was in dire and chronic poverty. It is hoped that some of the material collected will be of use to historians working in the social and economic fields.

The Bristol pipe industry is examined in Chapter 6, and is the major piece of research in this work. By combining a large amount of unpublished and unstudied sources - for example the apprentice rolls, the burgess rolls, the poll-books, and trade directories - with a survey of archaeological and museum material covering much of England and all of North America, a coherent pattern of origins, rise, trade, decline, and social history was revealed in a detail hitherto unobtained certainly in any study of pipemaking. Particularly gratifying was the way in which independent strands of evidence agreed with each other: for example the apprentice and burgess rolls both indicate a sharp drop in the size of the industry ca.1740 and this agrees with poll-book evidence and with North American archaeological evidence that the heyday of the industry was the first third or so of the C18. Also rewarding to the writer was the life brought to the study by Bryant's reminiscences in 1787 and the 1850 account of the poverty of a pipemaker in St Jude's recounted in an issue of the Examiner; and the occasional glimpses of humanity, humour, graft, and corruption. Pipes in Bristol City Museum from the urban renewal in the early 1960s in Lamb St in St Jude's, custom rubber-stamped in the way described by the T.J. Corcoran firm of Lamb St in their 1892 directory advertisement, were almost certainly Corcoran's products, and brought life to the advertisement, as well as providing unexpected evidence for Bristol pipes still being traded as far as Swansea and Plymouth as late as the 1890s, something one would not have otherwise expected so late with the industry almost dead.

Examination of apprentice- and burgess-roll entries by periods showed significant patterns in the progressive decline of guild control and the general relevance of apprenticeship and freedom-taking, much of it fitting in with, though occasionally modifying, Rogers's study of Bristol guilds (1949); and examination of the occupations of pipemaker apprentices' fathers produced some useful social conclusions. An analysis of apprentice ancestry by area of origin also produced useful social evidence. Wherever possible, evidence of this type was compared to similar evidence for other social groups both in Bristol and elsewhere in England.

Study of trade patterns at home and abroad as revealed by archaeological and museum evidence proved particularly interesting. A convincing case can be made that Bristol, already a port with increasing tendencies to specialize in certain aspects of oversea trade, progressively specialized in exporting pipes to North America during the second half of the C17 and ceased to supply the quite considerable hinterland, particularly up the lower Severn and its western tributaries, which it had had in the earlier and middle C17.

It was also evident that when the Bristol industry revived in the early C19 after its collapse in the 1760s and 1770s it was under a generation of makers who appear to have had little connection historically with the ancien regime of the C17 and C18. The demolition in recent years of virtually all the old properties in the St Jude's area, as well as the impracticality due to time limitations of studying the voluminous documentary material for the area in the form of property deeds and the like, prevented a thorough study of the C19 social history of the area, but enough evidence was collected to show the deep and chronic poverty in which pipemakers must have lived even at the height of the industry last century - the 1840s and 1850s - let alone when the bottom fell out of the business in the 1860s.

Lastly, there is the corpus of 705 Bristol pipemakers and pipemaking firms with drawings of as many of their products as this writer feels can be reasonably identified, which appears as Appendix IX. This should prove of considerable benefit to archaeologists both in Britain and North America and particularly to the latter in view of the major Bristol pipe trade there. As an archaeologist on historical sites since 1962, the writer feels this is a key section, for from it is built much of the economic history covered in this chapter.

Three major fields are still open to researchers on Bristol pipemaking. One is the port-books, which should give much detailed information on patterns of trade and the rise and decline of the industry. Apart from all the detail these books can be expected to give on the North American trade already indicated by the widespread finds on that continent of Bristol pipes, there should be additional evidence for pipes being traded to Ireland, Scandinavia, and Africa where at present archaeological recovery of pipes has hardly begun and about which only scattered documentary references to Bristol exports have been published. In particular, archaeological work on Contact and post-Contact sites in West Africa is eagerly awaited, for not only should there be much Bristol material associated with the slave trade there but the accuracy of the George family tradition that one of them helped produce pipes for the early C19 trade there may be proved. The George's trade latterly with South Africa should also appear in the port-books. The accuracy or otherwise of Friederich's contention that Bristol pipes were exported to The Netherlands ca.1700 should also be decided.

The sources of Bristol pipeclay may also be determinable from such a study provided the entries refer to pipe- or ballclay; in any event place of origin of shipments should give an indication of the type of clay. With the Bristol delft industry commencing before 1650 there should be plenty of references to imported ballclay, though local Dundry and "Stacent" clay (2: IX) was also being used. The export of Dundry clay to The Netherlands in the C17 instanced by one source (2: IX) should also be confirmable from such a study.

Port book entries may also be able to confirm the suggestion that the War of Jenkins' Ear and the War of Austrian Succession caused the sharp decline ca.1740 of pipemaker apprentices and pipemaker freemen recorded; they should also be able to add precision to the period 1760-80 when the evidence there is that it was the outbreak of the American Revolution in 1775 which finished off the industry and Bryant's reminiscences that it was the Stamp Act troubles of 1765-66 which caused the industry to fall into poverty are in slight conflict. Also interesting, in view of the apparent sensitivity of the Bristol industry to disruption in its oversea trade, would be a study of trade in the period 1702-13, the War of Spanish Succession, for there appears to be no evidence that the industry was hurt during this time.

The second topic for continued research in Bristol is the ongoing one of recovering, identifying, dating, and publishing pipe material recovered in the increasing archaeological work associated with urban renewal within Bristol. As examples of this can be cited the pile of clay pipe wasters discovered at the angle of Broad Weir and Lower Castle St which can be dated to ca.1782-92 and is attributable to the Israel Carey F 1756 who moved to immediately-adjacent Castle Green in 1781 or 1782 and was still there in 1787 but was dead by 1791 (R.G. Jackson 1972); the group of mid-C19 Ring-made bowls from Temple Back (Arch. Rev. 6 (1971) 47 s.v. Bristol - Temple Back; repeated in Cherry 1973: 114); the wasters and kiln-debris from Lewin's Mead which revealed a number of varieties of pipes, the majority identifiable as products of James Jenkins F 1707, fl 1739 (O. Kent 1973: 198; Arch. Rev. 7 (1972) 61 s.v. Bristol - Lewin's Mead); the kiln-debris and early-C19 wasters of an unknown maker found in Lower Castle St (ibid. 62 s.v. Bristol - Lower Castle St); and the kiln tip deposit found immediately beneath Whitefriars, a lane off Lewin's Mead, which produced material identical to the Israel Carey material noted above (R. Price in litt. 18 January 1974) and undoubtedly immediately predating the Castle Green-period material, as Carey was working at Lewin's Mead certainly by 1775 and until he moved to Castle Green in 1781 or 1782. The first two of these discoveries were made in 1971, the second two in 1972, and the fifth in 1973, all too late to be included in this study. The publication of the first two and the last groups in particular will be of the greatest interest, not only because no definitely-attributable Israel Carey pipes and virtually no Ring bowls have hitherto been identified but because for the first time selections of late C18 and mid-C19 pipe-material will be available to show the styles in use in these periods and to permit comparison with these styles typical of the earlier and mid-C18 and already well-known (cf I. Walker 1972c: passim). Another recent discovery has been that of a stem-fragment marked J. WILLIAMS - BRISTOL (Arch. Rev. 7 (1972) 61 s.v. Bristol - All Saints Lane, Crown Inn). While this could be a product of any one of three John Williamses working during most of the C19 (qq.v. Appendix IX), it is of interest because there appear to be so few Bristol C19 pipes known bearing the name and place of their maker (cf p. 680).[2]

Additionally, a field ideally suited to local researchers is the pursuing of further details on the various Bristol pipemakers listed in Appendix IX. There were limits to what sources could be checked by this writer, having regard to other necessary aspects of this thesis such as examining the home and oversea trade in Bristol pipes and collecting identifiable products of Bristol makers. To check, for example, 300 years of parish records for most of the 17 Bristol parishes plus Castle Precincts for extra evidence for the some 700 catalogued pipemakers would have been a task which would have taken time out of all proportion to what was practical. Such sources, however, plus wills, census records, marriage bonds, and much other unpublished material are likely to produce a good deal of detail, particularly as regards date of death which would sharpen many of our present date-spans for makers and will surely reveal interesting details on social conditions. Certainly there will be topics of specific interest such as tracing pipemaking families - the Tippets and Georges, for example - in detail.

It is to be hoped too that a kiln site in some state of preservation may be excavated: neither the Tippet kilns in Whitson St and Rosemary St nor the Okely kiln at Water St-Hollister St nor the Richards kiln in Thomas St

(Marochan and Reed 1959: 122 n.1) were ever reported on, and the St Jude's area has probably been lost; yet as noted in 2: VII few pipe kiln excavations have been recorded anywhere in Britain. With the considerable documentary sources available in Bristol (and what must be one of the best-kept archives in the country) there should be no insurmountable problems in locating areas of known industrial activity in advance of clearance - thus leaving only the inevitable problems facing all archaeologists, those of funds, staff, and publication (cf Ponsford 1971).

The third topic is an historical and sociological study of the St Jude's area, a project which might invite the attention of some industrial archaeologist. As indicated in 6: VIII, the Bristol Archives Office has the property deeds of a large part of this area, many of them going back to the laying out and initial settlement of the area from the first decade of the C18 onwards. From the point of view of such a study, the demolition of almost all the old area and the erection of more modern dwellings, mostly multi-storey, over various parts of this century and indeed up to the present time without some sort of study similar to those done for parts of East London as noted in 6: VIII is regrettable; but it is not yet too late to obtain first-hand accounts of the area from inhabitants, or former inhabitants, and as indicated in 6: VIII a certain amount of literature - mainly pamphlets relating to social observations or improvements in the area - does exist. This writer has not contacted people in the Salvation Army hostel at the corner of Wade and River Sts, but the four surviving public houses which still survived in 1969, structurally isolated from their originally densely built-up surrounds and no doubt viewed by planners as impediments to large-scale development of the area, do offer a useful ground from which to start. Certainly, no social historian should miss the "Volunteer" in New St with its spartan interior, iron stove still standing in the middle of the room with its chimney-pipe leading through the ceiling, signs saying that draught cider will not be served after 7 p.m. except to known clientele, and its distinctive class of patrons. As noted in 6: VIII, a study of C19 social work with particular reference to the St Jude's area could well be rewarding, the early establishment of the Bristol City Mission, the early appearance of "settlement" work by Clifton College and other institutions and individuals from Clifton, and the apparently uncharacteristic concern among Bristol Friends for mission work all being particularly likely to produce interesting results. More ambitiously, a study of the social and economic organization implicit in a C19 slum akin to that for the Potteries of Notting Dale in northern Kensington (Malcolmson 1970; also noted in Dyos and Reeder 1973: 371-2; cf also Reeder 1968: 264 and refs, 256-7 figs 14-15) might prove of the greatest interest.

Essentially, an archaeologist is an historian who uses certain techniques of research to present aspects of a picture not often considered by more conventional historians. In this study of clay tobacco-pipes, particular use has been made of the archaeologist's knowledge of identifiably Bristol material recovered from excavations to examine Bristol trade and in fact present the opposite side of the coin seen in studies of Bristol trade from more conventional historical sources such as port books (cf for example McGrath (ed) 1955, 1968 ed; Minchinton (ed) 1957). To have attempted a study of Bristol's port books would have been a task for which this writer is not professionally equipped; on the other hand, if Bristol economic historians find the archaeological data and interpretations presented here helpful in their studies, as this writer has found their presentation of documentary sources, then a major usefulness for this thesis will have been demonstrated and a hopefully fruitful dialogue established.

Here, the archaeologist's evidence is likely to be of particular use to social and economic historians and to industrial archaeologists, and the archaeologist himself is in part social and economic historian and industrial archaeologist. There is, after all, nothing remarkably important or valuable about clay pipes in themselves: it is what one obtains as a result of starting such a study that is worthwhile. At the beginning of this study, this writer quoted Jean Harrington's remark (1955b: 1124) that excavations of historical sites have made relatively little contribution to history but a considerable contribution to historical data; and Chapman and Chambers in the Introduction of their The Beginnings of Industrial Britain (Chapman, Chambers, and Sharpe 1790: 1) say essentially the same thing of industrial archaeology, observing that "The methods of Industrial Archaeology,...are an aid to, not a substitute for, a close study of the events themselves". In the case of this writer, having moved from British and European prehistory into historical archaeology, his interests have steadily expanded from clay pipes as a dating tool for archaeology to the examination of manufacturing techniques, to the consideration of those who made the pipes, to their social and economic status, and through the traditional equation of the working class with non-conformity to an interest (not pursued in this study, however!) in the history of Unitarianism and thence to non-conformist church architecture (cf I. Walker 1971g). In the Introduction to this work this writer noted that history is ultimately the study of people, and a more impassioned plea for this is presented below. As a study of people, history knows few boundaries, and certainly few of those invented to divide scholarship into neat artificial categories. History is the study of people, in every form from prehistory to industrial archaeology.

Industrial archaeology, it has been suggested, has reached a critical stage from which it must either advance or regress (e.g. Buchanan 1970b; 1972b: chapt 3; Cossons and Hudson (eds) 1971: section I); but assuming it is to advance it is not clear in what direction it should do so. As a field, industrial archaeology has had a rather unusual formative period. The term "industrial archaeology" was first popularized in 1955 by Michael Rix, an architectural historian, when he contributed an article with that title to The Amateur Historian[3] (Rix 1955). This article, the last in a series in that journal on different branches of archaeology, gave no close definition of nor explanation for the term, and in a subsequent article in the same journal seven years later (Rix 1962), the author admitted the use of the word "archaeology" had been criticized "since, by definition, it is concerned with things that are old, and mechanical industry is a development that is comparatively recent" (p.56). The following year Kenneth Hudson, in the first major work to define and describe industrial archaeology, noted that the term had "been much disliked and strongly criticized" because

> [the term] 'Industrial Archaeology' is an impossible mongrel,

> the ugly offspring of two parents who should never have been allowed to breed. 'Industry',...is by common agreement, a recent growth, a phenomenon no more than two hundred years old. 'Archaeology', also by common agreement, deals with the more distant past. How then,...is it reasonable or decent to speak of industrial archaeology in the same breath?
> (K. Hudson: 1963, 11-12, 1966 ed).

In 1967, in a booklet on industrial archaeology, Rix still felt it necessary to rebut criticism that the term was "a contradiction...since archaeology is ancient and industry is modern" (Rix 1967: 5).

This argument, however, seems to this writer (who is an excavating archaeologist) to be based on a false premise, though certainly there have been individuals who have criticized the term industrial archaeology on the grounds indicated. There is no contradiction of the kind asserted between the terms "industrial" and "archaeology", else we would hardly be able to talk of "medieval archaeology" and still less of "post-medieval archaeology" or (in North America and Australia) "historical [or variations of that word] archaeology": Glyn Daniel, noting Sir Alfred Clapham's dictum that archaeology began yesterday, rightly observes that in fact it begins today (G. Daniel 1963: 252; cf Bonnichsen 1973 and Rathje 1974). A number of excavations demonstrate the usefulness of this technique to the study of the recent past, for example those by Webster of two Ontario pottery - industrial! - sites of the second half of last century (D.B. Webster 1968; 1971), by Fontana of an Arizona ranch site of the same period (Fontana et al 1962), by Brose of a rubbish dump of the last quarter of last century (Brose 1967), and by Durrenberger of a mill- and house-site in Texas occupied form the early 1860s until - and this latter date was established by archaeological evidence, not documentary sources - sometime after 1914 (Durrenberger 1965), to name only some. The real concern among excavating archaeologists has been, as David Crossley, himself an excavator of a number of industrial sites, particularly post-medieval iron-working and glass-making sites (e.g. Crossley 1968a; 1972; Crossley and Ashurst 1969; Crossley and Aberg 1972), noted in 1968 when reviewing the above-noted booklet by Rix, that there is a feeling that "much is being lost in industrial studies by the inability or unwillingness of Industrial Archaeologists to appreciate the benefits which a training in excavation techniques could give them" and by cases where excavation has meant simply site-clearance (Crossley 1968b: 138). In other words, industrial archaeologists are tending only to scratch the surface (no pun intended) of the field, doing the sort of work an excavating archaeologist would do on an industrial site - recording standing structures and surviving layout and equipment - but not continuing their research logically by including excavation among their research techniques when desirable or necessary (or worse, by digging up a site unscientifically through lack of knowledge of, or interest in, proper excavation technique). Arthur Raistrick has made a powerful appeal for the inclusion of excavation techniques in industrial archaeology, and with it the broadening of the field to include pre-industrial revolution industrial archaeology (Raistrick 1972), but his call seems to have been coolly received (Buchanan 1972c: 248; Hume 1974: 62).

Further, by concentrating so exclusively on remains from the period from the industrial revolution onwards, industrial archaeologists are tending to concentrate on standing remains only, and thus to forget that within certain limits the best-preserved remains of all may be under the ground and their wealth of unrecorded data recordable by proper excavation. This lack of comprehension of the potential of excavation is strikingly exemplified in an otherwise very thoughtful article reviewing the first five years of the journal Industrial Archaeology which echoes many of the concerns voiced here, by the director of an American textile museum, who believes

> The classical archaeologist digs because he has to. Nothing else survives. But the man who would write about the history of modern industrial civilization in the United States and Great Britain already has many kinds of evidence available to him -engineers' notebooks, personal correspondence, contemporary periodicals, photographs, and company records, to name a few types. Those have been and will continue to be the major sources for the modern historian. Only when no other adequate record survives must he be concerned about physical objects (Leavitt 1969: 591).

This is a lamentably naive view. Classical archaeologists probably have as many written sources relating to their research as do industrial historians to theirs, and Mr Leavitt's textile museum must be astonishingly fortunate if it has such a store of the sources he lists that he has a complete view of the Merrimack valley textile industry. As for the last sentence of the quotation, one's mind boggles at the thought of a museum director who believes that "Only when no other adequate record survives must [the historian] be concerned about physical objects". (In fact, the City College of the City University of New York started a long-term programme of archaeological investigation and excavation in the Merrimack valley in 1974 (Schuyler 1974).) Industrial archaeologists tend, perhaps, to be dazzled by the splendour of visible remains and well-used machinery: that something so modern as a C19 locomotive works can be profitably excavated to add new information to our knowledge of C19 industrial processes would apparently be difficult to convince most industrial archaeologists of, but it is certainly the case (Rutsch 1973; Rutsch and Leo, "Excavations in Paterson's Locomotives Works: What We Found and What it Signifies", paper presented at the 1974 autumn symposium of the Council for Northeast Historical Archaeology, Paterson, New Jersey. Papers presented at that symposium, the theme of which was the industrial archaeology of Paterson, have since been published: see Cotz 1975; Fries 1975; Leo 1975; Margrave 1975; Morrell 1975; Ristau 1975; Rutsch 1975; C.I. Wilson jr 1975.)

Hudson in 1963 made much play of the fact that in the C19 "archaeology" was the recording of visible remains through field surveys rather than the excavation of sites and that the use of the word in the term "industrial archaeology" could be justified on those grounds. This argument is true so far as it goes, and the word archaeology is still used with this meaning - Hudson notes Archaeology in the Field by that field archaeologist par excellence the late O.G.S. Crawford (1953), and another indefatigable field archaeologist, Angus Graham, includes among his innumerable field studies *one entitled "Archaeology on a* Great Post Road" in which he specifically defined his paper as

> [exploring] the history of a highway,...by an archaeological method. Its conclusions, that is to say, are based primarily on observations made on the ground, though eked out, where possible, with maps and record material (Graham 1965: 318).

Hudson's justification, however, does ignore certain related points. First, in its C19 sense archaeology really meant the techniques used to record the visible remains of the past: in the C19, excavation techniques with the exception of very few instances - such as the work of Pitt-Rivers in southern England at the end of the century - had not evolved beyond the digging of uncontrolled holes or trenches; but with the evolving of scientific excavation techniques it is only reasonable that excavation should have become so important a part of archaeological technique in the C20. Secondly, even in the C19, "archaeology" provided the data from which one developed "prehistory" (thus the title of Sir Daniel Wilson's book The Archaeology and Prehistoric Annals of Scotland published a century and a quarter ago (D. Wilson 1851b)); and one of this writer's concerns - see below - is that "prehistory" (for which read history) does not seem to be developing out of industrial archaeology. Thirdly, harking back to an earlier paragraph, field archaeology should lead, as necessary, to excavation: the man who reads Archaeology in the Field will follow it by reading Archaeology from the Earth. Hudson has read only the former.

The concern, however, should not be whether "archaeology" ought or ought not to imply excavation techniques or whether industrial archaeologists are using the word in an earlier, purer, and more "correct" form. Concern should revolve round the very practical point that excavation is a very important and useful technique to discover and record information about structures of the past, standing or not, and about the work done in these structures and those doing the work; and that to omit its use (and in some cases one feels this omission has become deliberate, a way to separate industrial archaeology from other archaeology) is to lose much potentially useful information and thus to produce an incomplete and possibly superficial study (Woolrich, in a review of Angus Buchanan's Industrial Archaeology in Britain (Buchanan 1972b) makes this same point in criticizing the persistent refusal of industrial archaeologists to recognize the usefulness of excavation as a technique in their field (Woolrich 1973: 267-8)).

A more sinister weakness of the field, however, has been a growing tendency by some of its practitioners to extol as the virtues of the field the belief that all men are brothers, that enjoyment of the work is the most important feature of the field (and that this can be achieved only by non-professionals), and that professionals and academics are bogey-men out to kill the field by imposing the puritanism of intellectual standards. The most strident statement of this feeling, replete with some singularly ponderous sarcasms, has been a recent article by Hudson (K. Hudson 1974) criticizing an article by Riden (1973) querying the scholarship and goals of current industrial archaeology (see below); and it is a difficult pose to try to combat, falling as it does into the "You're all against me because I'm paranoid" syndrome. As part of his broadside, Hudson lists the contents of the first issue of the Journal of Industrial Archaeology in 1964 and compares it with the contents of the then most recent issue ten years later (vol 10 no 4; by now simply called Industrial Archaeology); but a closer examination of the titles listed seems rather to hoist him with his own petard, for in fact, going by these titles, one would have to conclude that the sorts and level of topic covered were the same in 1974 as ten years previously. This may be what Hudson is trying to point out, but if so, it would appear to weigh in favour of Riden's complaints, for in ten years one might have expected to see some development in the field, in whatever direction. One doubts if Riden's complaints about lack of scholarship in the field are really caused by his difficulty in talking, eating, and holding up his head in daily conversation with his fellow-intellectuals at St Edmund Hall, as Hudson suggests: it seems more likely that it is the static nature of the field and the seeming lack of movement in any direction which concern him. Further, Riden's article is neither new nor isolated in its views, as one might suppose from reading Hudson's dismissal of it. Leavitt made many of the same criticisms in 1969 and both Leavitt and Riden cite a number of writers, particularly reviewers of books on industrial archaeology, who have voiced similar concerns about the field. Even earlier, in a paper to the 1967 Bath Conference on Industrial Archaeology, the professional-amateur relationship was carefully discussed by Buchanan, who pointed out there need be no stifling of amateur enthusiasm if industrial archaeology became an academic subject and concluded that the most hopeful prospect for the field was for it "to develop into an academic study as part of the history of technology and general social history, while maintaining its grass-roots connections with voluntary local societies and amateur enthusiasts" (Buchanan 1968: 13). This, after all, is what has happened with every other branch of British archaeology, where the amateur has always worked, and still does work, closely with the professional. The amateur, in fact, has always been the backbone of British archaeology, and the existence of the better part of 300 societies connected with non-industrial archaeology and local history and nearly 200 publications covering the same fields (figures from CBA's Archaeology in Britain 1972-73 and Archaeological Bibliography for Great Britain & Ireland 1972) testify to the continuing vigour of amateur non-industrial archaeology, a number of county societies and their publications being over a century old.

With a field as many-sided as industrial archaeology is, there can obviously be a variety of ways in which it could develop, and indeed it is to be hoped that when (or if) development takes place it will do so in a number of directions concurrently. However, if history is indeed ultimately the study of people, industrial archaeology seems ideally suited to assist in achieving such a goal, but few of its practitioners appear to be inclined this way. The definition of industrial archaeology advanced by Buchanan (1972b: 20), that it is

> A field of study concerned with investigating, surveying, recording, and in some cases, with preserving industrial monuments. It aims, moreover, at assessing the significance of these monuments in the context of social and technological history

is one perfectly acceptable to this writer; what concerns him is that two decades after the first use of the term industrial archaeology, so little has been done to further the study of social history by its techniques. Leavitt observed in 1969 that

> Industrial archaeologists have created, copied, and gathered records, but they have written very little history.... [They] have given us many notes but no finished stories of consequence. They have been object-centered rather than subject-centered (Leavitt 1969: 591).

George Ewart Evans, talking about the recording of obsolete industries and trades, says much the same thing:

> Industrial archaeologists have already done a great deal of work...in this field within the last twenty years or so; but industrial archaeology, at least when it emerged, tended to follow the pattern of its older sister and concentrate almost solely on the object: the machine, the factory product, or the industrial buildings. The men - usually the last survivors - who had built or worked the machines or practised the craft were often ignored (G.E. Evans 1975: 189).

Basically, the monuments are being faithfully described, but not so the people.

D.M. Smith, while basically putting forward the same definition of the field, specifically included "company houses and industrial townships" along with the more obvious monuments such as factories, canals, and railways (1965: 15); and in his conclusions he maintained:

> Often [industrial remains] can reveal a great deal about the people involved. Industrial archaeology is, of course [sic], ultimately concerned with people rather than things: factories, workshops, houses and machines are of interest only as products of human ingenuity, enterprise, compassion or greed - as physical expressions of human behaviour. From whatever standpoint the subject is approached, man is the basic object of our curiosity. Each factory has something to tell us about the man who built it, and about his reaction to the economic and social opportunities created by the Industrial Revolution. Each machine tells us something about its inventor - about the capacity of human ingenuity to meet the needs of the new technology. Each row of workers' cottages reflects something of the lives enjoyed or endured by its inhabitants, and something of the character of the employer who built it. Those responsible for the birth of our modern industrial society erected their own monuments. It is for us to attempt to read and interpret the inscriptions (1965: 191).

Rix quoted all of the above with approval in the closing section of his 1967 booklet on industrial archaeology (1967: 20), and only recently Raistrick has emphasized that the field

> must be one of the humanities and it must achieve a view of man at work in varying tasks and surroundings, in which view the recording of a factory is as much a recording of the place in which lives have been spent as one which sheltered

> archaic machines....can we, with this approach, find something which the social historian has not already done for us? We are forced back into the view that industrial archaeology must be an integration of man at work, with the tools, structures, and materials with which he works, and the immediate environment in which his work is done (Raistrick 1972: 12-13)

but if indeed industrial archaeology is "ultimately concerned with people rather than things" and "man is the object of our curiosity", and if industrial archaeologists when recording a factory are recording "as much...the place in which lives have been spent as one which sheltered archaic machines", then few people are doing industrial archaeology or even being curious.

Apart from D.M. Smith, few others in the field appear to have considered company townships or working-class housing as industrial monuments. A perusal of the journal Industrial Archaeology since that periodical was founded in 1964 shows few articles on these subjects and only two with parallels to this writer's survey of St Jude's, both, significantly, by D.M. Smith (1964; 1966), the former on the Birmingham gun quarter and the latter on the hatting industry of Denton in Lancashire. Further, in the David and Charles "The Industrial Archaeology of the British Isles" series of which Smith's book is a volume, only Ashmore's volume on Lancashire (Ashmore 1969: passim) and, briefly, Marshall and Davies-Shiel's volume on the Lake Counties (Marshall and Davies-Shiel 1969: chapt 8), appear to offer some discussion on industrial housing or planned industrial communities; and it is perhaps significant that when studies of working-class housing have appeared, for example David and Charles's The History of Working-Class Housing: A Symposium (Chapman (ed) 1971), they come as a separate topic, though in the case of this volume at least one contributor, John Butt, is a prominent industrial archaeologist.

Essentially, however, we still await an industrial archaeological coverage of churches and chapels (cf I. Walker 1971g). Asa Briggs, in his Foreword to The Study of Urban History (Dyos (ed) 1968), noted, a propos of the urgency for urban studies caused by the speed of modern city transformation, that "There are obvious links between urban archaeology and industrial archaeology" (Briggs 1968: vii); but in fact the conference whose papers appear in the book to which Brigg's Foreword is attached was not presented with much evidence from industrial archaeologists as to the viability and usefulness of their field, only two of the contributors, F.M. Jones and J.D. Marshall, appearing to be industrial archaeologists. In fact, both their papers (F.M. Jones 1968; J.D. Marshall 1968) did convert industrial archaeology evidence into aspects of social history, Marshall indicating the same interest in planned industrial communities touched on in his Lake Counties work (J.D. Marshall 1958: chapts IX-XIX passim; 1971: chapt 12; Marshall and Davies-Shiel 1967: 131; 1969: chapt 8) and Jones discussing the aesthetic of the C19 industrial town, certainly a topic little considered hitherto. However, there was no attempt to present grass-roots industrial archaeology and show its potential for urban social history; and that industrial archaeology is missing an excellent opportunity to make a name for itself in this field is suggested by Dyos's remark at the same conference, that "Housing itself is oddly neglected....we have too few authentic tales of mean streets, of the making and unmaking of slums" (Dyos 1968: 37-8), indicating that the topic has been equally neglected by urban historians (see, however, Dyos's own observations on the development of slums, 1967: 24-39). This neglect on the part of industrial archaeologists is the more regretable when one gathers (D.M. Smith 1964: 108) that complete areas such as small industrial townships do come within the scope of industrial archaeology as defined by the CBA's list of type monuments.

This restricted utilization of the field of industrial archaeology is basically the complaint of Riden in his recent article criticizing the present state of industrial archaeology (Riden 1973); and interestingly, he makes the same point (pp214-5) about the neglected field of working-class housing. Riden's article has been criticized in the American Society for Industrial Archeology Newsletter (Vogel (ed) 1973: 6) as a "somewhat depressed, cynical review" of the field's accomplishments (or lack of) and present health (or lack of), "not unrealistic in some areas and food for thought for us all, but don't let it get too deeply to you"; but this is a somewhat sententious view considering that American industrial archaeologists, on the evidence of their publications so far, are in exactly the same situation - albeit better and more professionally organized - as are their British counterparts, who are, as one critic has vividly put it, pursuing "a frantic eclecticism in which nothing is discarded and everything is enshrined on the altar of technological progress" (Symonds 1972: 82).

True, this overstates the case, and underplays the fundamental importance rightly placed on collection of data and preservation of monuments; but as Leavitt says, industrial archaeologists are object-centred, not subject-centred -

> It is the peculiar task of the historian to synthesize, to trace cause-and-effect, and to explain change in time. As yet, the industrial archaeologist does none of these things (Leavitt 1969: 591, 591-2).

If E.H. Carr is correct and history is the "continuous process of interaction between the historian and his facts, [the] unending dialogue between the present and the past" (Carr 1961: 30, 1964 ed), then not much interaction or dialogue is taking place and few people in industrial archaeology even appear to feel it should. Mayhew, Charles Booth, and D.H. Lawrence should be on every industrial archaeologist's reading-list.

On this point, curiously, Hudson and this writer would appear to agree, though for opposite reasons. Commenting on the address of the president of the American Society for Industrial Archeology to the first meeting of that society in 1972, which stressed the interdisciplinary nature of the new organization and its board of directors, Hudson observed that there was "no social historian on the Board, no artist, no poet" and that on both sides of the Atlantic there was an academic breed of industrial archaeologist locating, recording, and conserving monuments "with all the detached fervour of dedicated collectors of birds' eggs or antique furniture", interested only in the object and considering the "human associations that may cling to its edges...unnecessary and disreputable, mere mud that stops the chariot-wheels of science from turning" (K. Hudson 1974: 73). The whole argument is misconceived, for it is the lack of professionalism in industrial archaeology that is generating birds' egg and antique furniture collectors; while the social historians, artists, and poets appear to align themselves with the journal Victorian Studies, an eminently academic publication, rather than the journal Industrial Archaeology; but the point is nevertheless made: "human associations" are not being considered. It is sad that there appears to be no industrial archaeologist among the contributors to the recent multi-faceted two-volume epic The Victorian City: Images and Realities (Dyos and Wolff (eds) 1973), but when one looks at the variety of topics covered one wonders if many industrial archaeologists could have contributed much to it - indeed, one of the contributors, Raphael Samuel (Samuel 1973), editor of the "History Workshop" series published by Routledge and Kegan Paul, is cited by George Ewart Evans (1975: 189) as having done what industrial archaeologists have not done, namely shown that oral evidence and better still direct, written, accounts from the craftsmen or the workers of the machines can make a valuable contribution to the social history of what has been called the second industrial revolution. Evans's own forthcoming study of the kind of oral history that can be gathered in the town or city and the use of oral history in studying the coal-mining industry in South Wales (noted in G.E. Evans 1975: 219) is keenly awaited. With social historians now becoming more and more involved in industrial environments, and excavating archaeologists and others involved in industrial sites, buildings, and processes publishing in Post-Medieval Archaeology - for example, E.L. Jones's "The Reduction of Fire Damage in Southern England, 1650-1850" (E.L. Jones 1969); Coad's "Chatham Ropeyard" and "Two Early Attempts at Fire-Proofing in Royal Dockyards" (Coad 1970; 1973); Tylecote's "A Contribution to the Metallurgy of 18th- and 19th-Century Brass Pins" (Tylecote 1972); Tann and Smith's "Early Fireproof Housing in a Staffordshire Factory Village" (Tann and Smith 1972); Courtney's "Excavations at the Royal Dockyard, Woolwich, 1972-1973: Part I" (Courtney 1974); and Hay's "Houldsworth's Cotton Mill, Glasgow" (Hay 1974), to name only the most obviously "industrial" articles, have all appeared in that journal - the spectre of industrial archaeologists as "a reincarnation of the late 19th-century antiquarians" (Leavitt 1969: 592) and of industrial archaeology "becoming a resting-place for the the easily-satisfied, the successors of those earlier antiquarians whose ill-directed enquiries have posed such problems for prehistoric archaeologists in recent decades" feared by Crossley (1968: 138) has certainly not receded.

At the First International Congress on the Conservation of Industrial Monuments, a gathering of industrial archaeologists held at Attingham Hall near Shrewsbury in 1973, "It was left mainly to the Swedes, the single delegate from East Germany, and three left-wing West Germans" to put the cause of social and cultural implications of industrial monuments (Richmond 1973). The East Germans were quoted as saying "technological monuments are only of value in so far as they relate to man", which is essentially what both D.M. Smith and this writer have suggested; the Attingham Hall reporter observed that British delegates "went on showing slides of stationary steam engines." Buchanan notes (1972b: 27, cf 83, 116) that "social change can be judged from the ancilllary features of the industrial landscape - the homes of the workers, their public houses, parks, and chapels, all of which deserve and receive the passing attention of industrial archaeologists"; but the emphasis has most certainly been on the "passing" so far. If industrial archaeology is to develop, it is going to have to become interested in people, not by lessening its zeal for recording and preserving, but by broadening the scope of material recorded and preserved and by turning recording and preserving into something other than ends in themselves.

Particularly in a society where so much of the past is vanishing in the face of global industrialization and centuries or even millennia of accumulated tradition are being lost as time-honoured skills and memories cease to be passed on from generation to generation, it is important to record non-literate history. Industrial archaeology is a particularly useful way of recording non-literate history, but unless it is tied to people, their traditions, values, and how they lived, it is static and sterile. A song dated somewhere between the ninth and sixth centuries B.C. has Moses counselling the Israelites about to enter the Promised Land to

> Remember the days of old,
> think of the generations long ago;
> ask your father to recount it
> and your elders to tell you the tale
> (Deuteronomy xxxii: 7, trans New English Bible)

and in the late C19 a Palestinian informant summed up tradition, when asked by a European scholar how he knew what he had said to be accurate,

> From those who have lived before me I have heard it. It is not with you as it is with us - some are born and others die, and the old tell the young what they know? (quoted in G.A. Smith 1894: 138 n.6, 1931 ed 1966 reprint)

but that tradition itself is rapidly being lost in the Western world. George Ewart Evans, in one of his books on vanishing East Anglian rural traditions, notes (1956: 236-7, 1965 ed) a then middle-aged farmer observing that

> I often used to go into the stable on wet days, or for half an hour at the end of the afternoon, and listen to the old horsemen or stockmen talking. They'd pick on some incident that had perhaps happened during the day, and around it they'd build up a picture of one side of farming or of the life they led in their early days. But today there are few men on the farm to tell these youngsters how they used to go on in the past; and there's little opportunity to do so. And with the machine and television competing for their time and interest the young ones haven't much ear for the past either. There's been a more or less complete break; and it wasn't until I saw how little these lads knew about the old way of farming that I realized how nearly complete the break had been.

The trade of a wheelwright only comes to life when it is realized that the craftsman became so close to his work that he could recognize his products by the sounds alone of the waggon or wheels - Sturt remarks (1923: 134, 1963 ed) that people could tell by the sounds whose shop had hung the wheels and George Ewart Evans (1966: 170-1, 1971 ed) notes a wheelwright who could tell a waggon of his by its noise for after finishing the waggon he had someone drive it for a few miles while he walked behind listening to the sounds to make sure they were familiar. Such a level of intimacy with a manufacturing process is unlikely to be achieved again in our society. Kenneth Kilby in his account of the now-dying trade of coopering suggests (1971: 177) that in a generation or two a small boy may ask "'What's a barrel, Dad?'"; in October 1972 B.L. Fontana of the Arizona State Museum noted in a letter to the writer that he had passed a marked clay pipe fragment round a class of 35-40 students taking a museum course and not one of them had been able to identify it as part of a clay tobacco-pipe.

"Dead archaeology", as Wheeler says (1954: 13, 1956 ed), "is the driest dust that blows", and more recently Geraint Jenkins has made the same point, citing the importance of folk life studies for undertaking artefacts (J.G. Jenkins 1969). Peter Fowler also, talking about the pre-Roman British Iron Age, has reminded archaeologists that

> what worried Joe Celt was not whether he was conforming to the La Tène III norm on producing enough artefacts for statistical analysis but whether the spring would dry up this year, whether he could push his fields further into the woods, or whether his feckless neighbour at Dindun was going to curb his pyromania these coming winter nights (P.J. Fowler 1969: 124).

To quote from another of George Ewart Evans's books on East Anglian tradition, this time his recording of the memories of a man born in 1888:

> But the ordinary worker's dress for Sunday was a square-cut, long, black velvet jacket with short revers and about six buttons down the front; a very good cord trousers, medium drab in colour, and a bowler hat with a set (or straight) brim - the curly brimmed bowler was the wear for the toffs, the gentry. The makers of these bowlers always put a peacock's feather on the side of the hat. Every man liked a feather in his hat. Often a new bowler hat had a clay-pipe stuck in the band as well; or even a cigar. You could get a sure-shot cigar for tuppence in those days....
>
> Mention of the clay-pipe, though, reminds me that you won't have a complete picture of the old horseman or farm-worker unless you've got his old clay-pipe in. They were called Dublin clays; they were mostly made in Dublin, I understand [sic: Dublin in fact was a bowl shape - ICW]; but a tobacconist could have his name and so on stamped on them by the makers. They cost a halfpenny; and they used to sell them, and even give them away, in the pubs. There used to be a kind of competition among the customers to see who had the blackest pipe. This is what they used to do: as soon as they bought a new-clay they'd soak it in their beer. Then when they smoked it the pipe would turn black as your hat. They'd be unwilling to part with it when it got like that; and if the stem broke they'd smoke it even if it were only an inch long.
>
> They used a tupenny ha'penny shag in those days - two pence half-penny an ounce. It was made by Churchman's and

> was a real good stuff. I remember the smell of it as clearly as if I'd been near someone who was smoking it out there on the pavement. I'll tell you why. One morning when I was a young man I got up about four o'clock to cycle to Chapel St. Mary; and on the way there it was just getting light - a fine morning with the sun coming up and dew on the grass - when I got behind three or four farm-workers on their way to work. They all had their old clay-pipes going; and the aroma - I've never forgotten it - it was better than any cigar you'd like to mention.
>
> Another thing that's tied up with the clay-pipe is the old Ha'penny Screw. This was a halfpenny-in-the-slot machine. It was made of brass, about eight inches square. It's a collector's piece now, and would fetch a lot of money. You'd find them on the counter in the pubs. You put in a half-penny and you'd get out a screw of tobacco, about enough for three pipes (G.E. Evans 1960: 81-2, 82-3, 1967 ed).

This evocation of the past - the smell of pipes in the early morning was a vivid memory with George Sturt as well (Sturt 1923: 15, 1963 ed) - like that in the superb Victorian photograph of three men with their tankards and pipes outside a London pub in 1877 (Betjeman 1969: fig 125) should be the ultimate aim of history and archaeology.

In the preface of his The Making of the English Working Class, E.P. Thompson criticized the "Pilgrim's Progress" historical approach taken by some historians to the period, whereby it is "ransacked for forerunners-pioneers of the Welfare State, progenitors of a Socialist Commonwealth, or (more recently) early examplars of rational industrial relations" because

> Only the successful (in the sense of those whose aspirations anticipated subsequent evolution) are remembered. The blind alleys, the lost causes, and the losers themselves are forgotten.

Thompson went on:

> I am seeking to rescue the poor stockinger, the Luddite cropper, the 'obsolete' hand-loom weaver, the 'utopian' artisan,...from the enormous condescension of posterity. Their crafts and traditions may have been dying. Their hostility to the new industrialism may have been backward-looking.... But they lived through these times of acute social disturbance, and we did not. Their aspirations were valid in terms of their own experience; and if they were casualties of history, they remain, condemned in their own lives, as casualties (1963: 12, 13, 1968 ed).

In as much as it is possible in a study of this kind, the writer has tried to keep this in mind when studying the manufacturers of clay pipes and their craft, both in the times of their prosperity and in the times of their decline into obscurity.

Endnotes

CHAPTER 1: BACKGROUND

1 Much of the whole argument was singlularly witless, but Foley's observations in the first-listed article that anthropologists would call the Industrial Revolution "a 'florescent' or possibly a 'climax' period" and that the term Industrial Revolution "is restrictive in scope and implies denial of an historical-cultural continuum" are bons mots worth remembering for after-dinner chat over cigars and brandy.

2 For example, out of the 55,000 clay tobacco-pipe fragments found during excavation at Jamestown, Virginia, only three or four entire stems were found (Harrington 1954: 1st page), and no mention is made of any whole pipes at all. Only in extremely favourable conditions are whole pipes likely to be found on archaeological sites, the three recovered from a mid-C19 privy at Paterson, New Jersey (C.I. Wilson jr 1975: 41, fig 4-4), for example probably having been accidentally lost in the privy and preserved intact because of the relatively protected nature of such deposits. In certain circumstances pipes from underwater sites can be remarkably well preserved, for example the over 250 pipes recovered from the remains of a wooden box where they had been packed in regular fashion head to tail in a packing apparently of some form of seed pods on a mid-C17 shipwreck of a Dutch East Indiaman off the coast of Western Australia (Green 1973: 283).

3 What appears to be a heavily-corrupted version of this quotation is given in Laughton 1923: 19. In this version the broken pipes were on a shelf in the room and "about a ton of tobacco ashes" was in the hearth.

4 Tennyson's pipe-rack, complete with pipes, is in the Isle of Wight Museum at Carisbrooke Castle (seen there by this writer September 1973). The pipes are short-stemmed, the bowls undecorated except for a line of dots below the rim. A 1900 price-list of Scottish-made pipes (Anonymous 1900: passim) notes a type of pipe called a Tennyson: this may, of course, refer to a pipe with his bust moulded on the bowl - the prices given do not suggest the elaborate pipes with their bowls moulded in the form of a personality's head - but it may equally well refer to a type favoured, or allegedly favoured, by the poet.

5 But he forgets that up to 1752 the year began on 25 March, so that dates between 1 January and 24 March are a year later than they appear: for example, William Cissoll, F 19 February 1660 (O.S.), leads the list of those free in 1660 when he should head those free in 1661.

6 It should also be noted that the type 7 shape, with its straight- or relatively straight-sided bowls, has also been ascribed to Dutch

influence (e.g. O'Neil 1961: 378).

7 Since this was written, Mr Southorn has restarted manufacturing clay pipes, though so far only small ones (Atkinson *in litt.* 19 August 1974).

8 That Woodstock pipes were a popular variety is suggested by several found on American sites bearing the name of the firm of W. Demuth and Co. of New York City. Fort Saunders, Wyoming, occupied 1866-82, produced three marked REAL WOODSTOCK PIPE, two of them with 122 W DEMUTH & CO on the opposite side of the stem and one with the same inscription but the number 83 (R.L. Wilson 1971: 26, 44, 71 fig 25,A-B, 76 fig 31,A), indicating at least two varieties of the type, the number 83 example having a smaller bowl. Another fragment, but with no number noted, came from Fort Berthold I, North Dakota, occupied 1845-62 (G.H. Smith 1972: 105 fig 54, f, 107). The New York City trade directories first list William Demuth as a clerk from 1858 to 1862; from 1863 he appears as a company, being listed as "importers" 1863-64, then as "importer of smokers' articles" 1865-68 and finally as "pipes" (sic) from 1869 onwards, at which time Isaac and Moses Demuth became associated with the firm (New-York Historical Society *in litt.* 6 March 1974). In 1937 the Demuth firm, which by that time had already left the Demuth family, was acquired by the firm of S.M. Frank and Co. Inc. of Yaphank, New York state, who still continue to manufacture and import brier pipes (S.M. Frank and Co. Inc. *in litt.* 14 March 1974). From the trade-directory entries cited above it is not absolutely certain that the Demuth firm *made* pipes, but one source (William Bonner, *New York, The World's Metropolis* (1924), cited by the New-York Historical Society *in litt.* 19 March 1974) claims the company manufactured pipes from 1862, while another (Anonymous 1962b) claims that Demuth, "a pupil of Edward Hen, began the making of pipes in 1861". Edward Hen, the same account states, was "before 1860...almost the only importer of note [of pipes]; [and] was known as the pipe man of the United States". It is possible Hen both imported and latterly made pipes, and that Demuth took over his master's business; a commencing date at the beginning of the 1860s for Demuth's manufacture of pipes, or for that matter simply the marketing of Demuth-marked pipes produced elsewhere, would not disagree with the dates of the two sites noted above producing Demuth Woodstock pipes.

A badly-worn stem fragment with DEMU- on its left side and IC on its right recovered at Old Sacramento, California (Humphrey 1970: 30, 29 fig 45) may also be a Demuth product: the Old Sacramento site was well dated to 1846-52, which on the above evidence would be too early for Demuth products, but the site cannot have been entirely free from later material, for it also produced a Davidson of Glasgow stem-fragment (Humphrey 1970: 15, 16 fig 3) which cannot be earlier than 1862 (see 4: IV). Unfortunately, no Demuth records have survived; indeed, even the family appears to have died out (S.M. Frank and Co. Inc. *in litt.* 14 March 1974). (If Demuth's Woodstock pipes were produced for the firm by another maker it does not appear to have been by any of the Scottish firms whose pipe-types appear in a price-list of 1900 (Anonymous 1900), for none of the mould-numbers 83 or 122 listed are Woodstock pipes.) The American Clay Pipe Works of New York City, which manufactured clay pipes until 1959 and subsequently had them made from their moulds by McDougall's, at one time produced three styles of Woodstock pipe - a Heavy Woodstock, a Small Woodstock, and a Large Woodstock (FIG 8 centre) (American Clay Pipe Works in litt. 6 and 20 December 1965; Anonymous n.d.[11]: 15). A Woodstock pipe is still produced in brier (FIG 9 btm) (Anonymous n.d.[10]; Herment 1954: 34 fig 9, also back cover, 1963 ed), but as can be seen from a comparison of the illustrations the brier Woodstock only remotely resembles the clay Woodstocks.

9 "Rifle" here presumably indicates a stylistic variation of the Volunteer pipe, akin to other prefatory terms such as "Acorn" Balm, "Plain Field" Balm, or "Town" Balm; or "Lily" Crop, "Melbourne" Crop, "N. Basket" Crop, or "N.L. Basket" Crop, to quote only a very few of the terms appearing in the 1900 price-list. However, elsewhere in the same list, as again with others of these terms, "Rifle" is used as a type name - e.g. Rifle, and Long Rifle - with the variation (as in the latter example) again indicated by a preface. Unfortunately, the meanings of many of these terms are now lost, probably for ever unless more illustrated catalogues than this writer knows of can be located or whole pipes are found with either their names or their mould-number and maker's name on them.

10 The publication of this writer's note on Ralegh pipes (I. Walker 1972b) resulted in several pieces of correspondence regarding examples or possible examples found. Oswald (in litt. 4 and 11 October 1972) notes examples from Queenshithe and Aldgate in London, Plymouth (see also Oswald 1970a: 140, 141 fig 59,79), Bristol (at Torquay Museum, not seen there by this writer), Nottingham, Leeds, and Edinburgh. The Edinburgh specimen, a bowl, is a very devolved representation, while a bowl from Nottingham was schematic in design almost to the point of non-recognition, though a clearly-moulded stem-fragment showing the crocodile's mouth also comes from Nottingham. The Nottingham stem, however, and that from Leeds, were associated with C19 material, and so may date to that period. Atkinson (in litt. 5 September 1972) notes an example from Lyme Regis, another from Bramber in Sussex, and also has one in his possession from Copenhagen, where they are known to occur (cf Atkinson 1972d: 179 n.9), presumably as Dutch imports (cf 3: II and VII). All these examples were datable on typological grounds or by associated material to the second half of the C17. Yet another Ralegh pipe fragment has recently turned up in the collections at Poole Museum (Cooksey in litt. 29 November 1972); its find-spot is unknown, but presumably it is local. It is perhaps significant that so many of the British finds are coastal: if they are not Dutch imports they may conceivably be local imitations by makers who had seen Dutch originals used by crews of visiting ships.

In North America four possible stem-fragments have occurred among surface finds at two sites in Lancaster county in Virginia (Mrs E.H. Beane in litt. 18 August 1972); and what may be a rather debased example of a Ralegh bowl occurs at the Sullivan site, a mid-C17 Oneida Indian site in upper New York state (Bennett and Cole 1973: fig 16,Q)

- in any event, the bowl has a stylized face facing the smoker and occurs with other pipe material most of which is Dutch.

Another recent find of a Ralegh pipe occurred during the excavation of the wreck of the Dutch East Indiaman *Vergulde Draeck*, which sank off the Western Australian coast in 1656 (J.N. Green 1973: 283-4, 283 fig 13,C).

Regarding the C19 example noted by this writer from the Thames with STEPNEY on its stem (I. Walker 1972b: 163), Atkinson (*in litt.* 5 September 1972) notes one found in Sussex stamped across the stem "BUSH & CO/29[?] Holborn/London", which must be the William Bush and Co noted in High Holborn 1859-62 (Bloice in Atkinson and Oswald 1969: 218), indicating that more than one C19 London maker was producing this form. That a memory of this type of pipe apparently extended from the early C17 to the second half of the C19 is extremely interesting, suggesting again the tradition-orientated nature of the pipemaking industry.

11 The increase in tax from 6s8d to 20s a lb in 1608 is given in MacInnes 1926: 52 - according to Anonymous n.d. [16]: 1st page, James *lowered* the tax to 1s a lb in 1608 and in 1615 (see above) raised it *to 2s a* lb.

12 According to Douwe Egberts of Utrecht marijuana was similarly used and this explains the drugged expressions on the faces of smokers in some early paintings of the subject. Adulterations were by no means confined to the C17: in 1715 an act was passed forbidding (with no great success, to judge by the continuing records of fraud) leaves, herbs, plants, or any other material to be coloured as or mixed with tobacco under pain of a 5s fine for each offence - or if one belonged to lesser classes such as servants and labourers, imprisonment with hard labour for up to six months - and also forbidding the mixing of snuff with ochres, umber, or any other colouring except a water solution of venetian red, or with fustic, yellow ebony, touchwood, ordinary wood, dirt, sand, or tobacco-dust (Alford 1973: 6); and Fairholt (1859: 58) and Sprunck (1957: 58) instance dozens of C19 adulterations.

13 "Stith's uncritical use of the official records [of the London Company] led him into serious errors of fact and interpretation..." (Wish 1960: 28).

14 Laufer gives 1602 as the date of Dekker's *The Guls Horne-booke*, but Dickson (1954:101 n.99) correctly gives the date as 1609.

15 Curiously, Morton does not actually name the firm he is describing, but there is no doubt as to its being Fribourg and Treyer as its location (though not its street-number) is given and much of his commentary is identical to information contained in Evans's book.

16 Jacques Savary des Bruslons died in 1716, and his *Dictionnaire universel*... was continued by his helper and elder brother Louis-Philémon (or Philémon-Louis - both versions occur) Savary and appeared in two folio volumes in 1723. The brother, who died in 1727, also produced a third, supplemental, volume, which appeared in 1730. The information contained in this work, therefore, must relate to the early C18 at latest. Various reprints and/or editions (the available

descriptions do not differentiate with clarity) followed: 1726-32 in four quarto volumes, 1741 in three folio volumes, 1744 four folio volumes, 1748-50 three folio volumes, 1750-52 five folio volumes, and in 1759-65 a "new" edition in five folio volumes (translated into English, the *Dictionnaire universel*... appeared, "with large additions and improvements", as Malachy Postlethwayt's *The Universal Dictionary...Translated from the French of the Celebrated Monsieur Savary*,..., 1751-55, in two folio volumes, a work which in turn went through its own series of editions). What is probably the first edition is quoted on p.152 below giving an observation identical to part of the entry in the 1759-65 ed; this latter entry has notes on rates of duty imposed variously in 1739, 1745, and 1751, but it is probable that the basic entry is the same as that in the first edition, in which case the information will still be basically that of the early C18 at latest (the quotation on p.152 is cited as coming from the 1726 edition, but it is probably from the first, 1723, edition as the bibliographic date given for the citation refers to the 1726 edition as being in two volumes and published in Paris, which would agree with the first edition but not with the 1726, second, edition which was published in four volumes in Amsterdam). It is almost certain that the *Dictionnaire domestique portatif*,... account published in 1764 is an unacknowledged copy from the *Dictionnaire universel*... entry, either from the 1759-65 ed - the volume with the entry on pipes appeared in 1761 - or from an earlier edition or reprint (for bibliographic details on Savary des Bruslons see his entries in the *Catalogue général des livres imprimés de la Bibliothèque Nationale: Auteurs* vol CLXIII and Quérard's *La France littéraire*,... vol VIII).

17 Alford's comment (1973: 111) that "Smoking carriages on railways were first introduced in 1868" is thus misleading; an illustration of 1846 to mark the Eastern Counties Railway's introducing these carriages and showing their interior is reproduced in West (ed) 1953: 34, as is a contemporary cartoon showing three of the four occupants of such a carriage smoking and one of them complaining of the fourth to the guard: "Guard, here's a man not smoking".

18 Despite this, Ure was one of four eminent chemists of the time retained by the tobacco-manufacturers to fight the Pure Tobacco Act of 1842 which forbade any additives apart from water (and vegetable oil for making roll tobacco and certain alkaline salts and scents in snuff). With the relaxation two years previously of the law on additives in tobacco, saccharine matter had become the most common; Ure, who was on record as stating flatly that in many cases adulterations in tobacco could not be detected by known chemical means (the Excise Department having produced its own experts to prove the contrary), and the three other chemists conducted tests which showed random samples of tobacco leaf could contain from 0.75% to 2.06% natural fermentable sugar. However, these findings did not obtain the repeal of the act, which in many essentials has lasted to the present day (Alford 1973: 81-7).

19 Also grandfather of James Kenneth Stephen (1859-92), suggested by some

to have been Jack the Ripper, tutor at Cambridge to Prince Albert Victor, Duke of Clarence and eldest son of the future Edward VII, who also died in 1892 and has also been identified as Jack the Ripper (C. Wilson 1975: 25 and Rumbelow 1975: 206-19).

20 At one point Alford, talking of the earlier 1840s, says "cigars were only just becoming fashionable, thus accounting for no more than 2 per cent of tobacco consumed" (1973: 84); and on another occasion (*ibid.* 171-2) he claims that cigar-smoking was increasing in popularity in the 1880s and 1890s, but neither of these statements appear to be borne out by the available evidence.

21 Vicarius is presumably the Dr Johann Jacob Franz Vicarius (note name order) or Johannes Jacobus Franciscus Vicarius (B 1664, D 1716) who wrote a number of medical treatises in Latin published in Germany at the end of the C17 and beginning of the C18. According to Gurlt and Wernich (1934: IV, 746, 1962 ed), Vicarius was born at Lauf(f)enburg, studied at Freiburg, and was successively *Physicus* at Waldshut, professor of medicine at the temporary university of Constanz, and professor of medicine at Freiburg. Haller's *Bibliothecae Medicinae Practicae* (1788: IV, 68) notes a work by Vicarius entitled *De tubo tabacario orientali, in quo per aquam fumus transit*, suggesting Vicarius did indeed have an interest in smoking.

22 Bastien (1973: 3rd chapt) quotes somewhat different figures for annual production "*pour la période 1850-1870, de la petite ville allemande de Ruhla*":

Pipes en véritable écume de mer	570 000 *pièces*
Pipes en écume imitation	500 000 *pièces*
Fourneaux en porcelaine	9 600 000 *pièces*
Pipes en bois	5 000 000 *pièces*
Pipes en terre	3 000 000 *pièces*

These figures may in fact be rounded-off approximations of the above, with the exception of the number of artificial meerschaums, where there is an error one way or the other of a zero, if nothing else. As neither the *Encyclopaedia Britannica* nor Bastien cite their sources it is difficult to decide which is correct, but in the C19 the *Encyclopaedia Britannica* was a reputable source of information and is probably to be preferred here.

23 Hence, through a confusion with the wild rose brier or briar, the term brier or briar pipe - the older spelling (still given preference in the *OED*) for both plant and pipe is brier.

24 T.P. Cooper (1907: 98), when citing this, unfortunately gives the date for Fairholt as 1839, thereby adding to the confusion.

25 The identification of these stems as amber was confirmed by testing by M. Salmon of the National Historic Parks and Sites Branch's Conservation Division in Ottawa.

CHAPTER 2:
MANUFACTURING PROCESSES

1 Both Duhamel du Monceau and Brongniart use variant spellings of these

and other place-names, which can lead to difficulty in identification. Elbeuf appears as Belleboeuf, for example. The Saint-Aubin mentioned is apparently not the suburb of Gournay-en-Bray of that name.

2 The spelling Liège was used until after WW I, when Liége became general. In 1951, however, the spelling Liége was made official. The adjective, however, is, *liégeois*.

3 Bastien incorrectly spells this Neuchâtel-en-Bray.

4 For example, Coad (1970: 162), describing rope-making, notes that Rees's *Cyclopaedia* (1802-20) quotes almost verbatim Steel's *Rigging and Seamanship* of 1794, in one part describing a process in use in 1794 but already about to be replaced by a method first patented in 1793, improved in 1799, and in use from that time, well before Rees was publishing his account. Celoria (1973: 11, 20ff), warning that "an adaquate description of a process in use around 1856 might use an illustration pillaged without acknowledgement from a publication of several decades earlier" and that "a competent description of a typical potter's wheel published in the 1850s might use a drawing taken from a French work of the 1840s", cites a number of examples of this particular hazard (cf comments on encyclopaedia accounts noted on pp 174-5 and 177-80 below).

5 There is no evidence that British pipemakers used any of the care lavished by the Gouda pipemakers on preparing their clay, and it is probably significant that Celoria, in his recent survey of C19 ceramic machinery used in The Potteries and other parts of Britain, observes that "Pug-mills are difficult to document from before 1800" (Celoria 1973: 32). He notes (*loc. cit.*) an early horse-operated example in a publication of 1805, and a number of mid-C19 descriptions and illustrations (*ibid*. 32-5) suggest the machinery used at this time was essentially the same as that illustrated by Duhamel du Monceau as being used at Gouda.

6 According to the caption for pl XVI, however, the depiction is of unfired pipes being taken to the pottery for firing. The peculiar manner of walking when delicately carrying the fragile load was known as the *pijpmakersdrafje* - "pipemaker's trot" - which expression apparently still survives in Gouda to refer to a peculiar gait of anyone.

7 The Hollandse IJssel is not to be confused with the IJssel which flows into the IJsselmeer (former Zuider Zee).

8 The ancient Greeks invoked the help of the gods for a successful firing and medieval potters offered prayers before firing their kilns (Kelso and Chorley 1943: 111-2); the C16 Italian, Cipriano Piccolpasso, described the lighting of the kiln thus: "Invoking the name of God, take a handful of straw, and with the sign of the cross light the fire" (quoted in Rhodes 1969: 189). Bernard Palissy, the C16 French potter, recounting the various problems of trying to fire a kilnful of pottery evenly and how when he solved one problem the opposite problem would arise, observed that he "blundered thus for fifteen or sixteen years: when I had learned to guard against one

danger I encountered another that I would never have thought about" (quoted in Rhodes 1969: 116). Kelso and Chorley (loc. cit.) give an excellent resume of the technical problems potters had to contend with in firing their wares.

9 According to one source (Ons Heem 1963: 185 n.1), the Dutch word for pipemaker as the Van Dale dictionary (the premier Dutch dictionary) spells it - pijpemaker - is spelt pijpmaker in Gouda (the Dutch for pipe is pijp, plural pijpen). The spelling pijpmaker is certainly used by Helbers and Goedewaagen in their Goudsche pijpen (1942), the standard work on the Gouda pipe industry; other studies of Dutch pipes are divided in their usage of these two spellings. However, the largest Van Dale dictionary available to this writer, the two-volume Van Dale groot woodenboek der Nederlandse taal..., 1970 ed, lists neither spelling, giving instead pijpenmaker - literally, pipesmaker - and this version also appears in studies of Dutch pipes.

10 This word causes problems. In the unpublished Gouda pipemakers' guild records it is noted twice (in its directie form) and in both cases - once in 1734 and again in 1761 - it appears quite clearly to mean the mark on the mould which indicated the end of the stem and showed the amount of excess clay to be cut off the wired roll with the schenkertje (see below). In both references the length of the stem when measured was to be the distance between the heel and the directie. The 1734 reference also indicates an alternative term to directie was knoop (knot or button). It should be noted that the pipemaking exhibition of the Douwe Egberts tobacco, tea, and coffee firm in Utrecht called the excess clay at the top of the bowl not directie but huisje, literally a little house. A possible solution is that the meaning of directie has been transferred from the mark on the mould at which the stem-end was cut off to the piece cut off at the mark and thence to any piece of excess clay trimmed off. There is a particularly tantalizing reference in an entry in the Bristol Pipemakers' Guild Book, in a decision made in 1710 to standardize lengths of various types of pipes (see p.15 above), that Bristol makers would henceforth measure these agreed-to lengths so many inches "from the Heel to the direction of the Point": the "Point" is presumably the finished stem end (possibly a "point" marked on the mould as noted above to indicate the place where the excess clay was to be removed), but it is just possible that "in the direction of the Point" was a technical expression in the English pipemaking industry which was taken over to The Netherlands by English makers and there changed as the terminology became absorbed into Dutch so that the word "direction" came to replace "point".

11 Littré's Dictionnaire de la langue française (1956-58 ed) gives preference to the spelling casette, listing cazette and gazette as variants; the Dictionnaire encyclopédique Quillet (1968-70) prefers cazette and lists casette as the variant; it lists gazette with the meaning of a "coarse paste for enclosing pottery for firing". Neither lists gassette. An archaic meaning of casette is a small house, from which its use for saggar is probably derived; it is distinct from cassette a casket, instrument case, or money-box, though the etymology

of the two is undoubtedly the same.

12 Kasten means "chest" literally - in the sense of a box - as well as being used here for the item known in the English pipemaking term "chest". Whether this is coincidence or not is difficult to say. The Dutch term for a pipemaker's chest, as already noted, is schroef, literally, screw, and there is evidence that the English term screw was known in the C17 for a pipemaker's chest. It is therefore unlikely that "chest" in its pipemaking sense would have reached the Westerwald with the presumably Dutch founders of the pipe industry there; however, there might be a connection between kaster, the Dutch word for the moulder derived from a lost English "caster", and Kasten for part of the equipment used by the kaster based on a fortuitous similarity of words.

13 The identification of these three villages causes problems. Sommersdorf is presumably the village of that name ca.25 miles W of Magdeburg, though at this distance it is not really "near" Magdeburg, nor has it ever been within the Duchy of Magdeburg. No place by the name of Heidersleben is known, but Hedersleben 25 miles SW of Magdeburg, Hadmersleben 17 miles SW, and Emersleben (not found on maps) were all suggested and were all within the Duchy. (There is also a Haldensleben, 15 miles NW of Magdeburg, which was also within the Duchy.) The only known Herrenhausen appears to be the place now a NW suburb of Hanover, some 75 miles WNW of Magdeburg and like Sommersdorf never within the Duchy of Magdeburg, but a Hornhausen exists 20 miles WSW of Magdeburg and lay within the Duchy (based on information supplied by the Staatsarchiv Magdeburg, East Germany, in litt. 28 October 1970, and by the Braunschweigisches Landesmuseum für Geschichte und Volkstum, Brunswick, West Germany, in litt. 24 February 1971). These inaccuracies suggest Sprengel may not have been familiar with the area or even with the manufacturing method he describes; he also mis-spells Hildesheim as Hilderheim, reinforcing this impression.

14 Bivins, describing pottery manufacture at the Moravian settlement of Bethabara in North Carolina (for the origins of these settlers, and an account of their pipe manufacture, see Section VIII below) notes (1972: 78) a 1780 inventory reference to "3 clay sickles", unidentified tools which he suggests may have been used to cut large masses of damp clay into more manageable blocks. It is perhaps possible, bearing in mind the German origin of the Moravian settlers, that these sickles were in fact a tool similar in appearance and use to the Tonschneide.

15 Interestingly, Rhodes notes a lower limit for the size of kilns burning solid fuel (coal or wood) of not much less than the size deduced for Rømer's kiln. Ample space has to be allowed for the combustion of solid fuels in order to allow the necessary quantities of heat to be released, so that below a certain size solid-fuel kilns become impractical because too much of the total space has to be given over to combusion. A catenary-arch kiln design with a floor-space 3 ft 9 ins by 3 ft 4-1/2 ins and a maximum height of 3 ft 6 ins (the firebox is at one end, the chimney at the far end of one of the

side-walls, providing cross-draught circulation; neither firebox nor chimney is included in the above figures) is described as perhaps the smallest size that should be built for wood firing. The external dimensions of this kiln are 5 ft 8-1/2 ins by 5 ft, excluding the chimney (Rhodes 1969: 60, 224 fig 196, 225 and 228).

16 Curiously, the only Strong pipemaker recorded at Leeds by Lawrence (1974: 193) is a Frederick Strong recorded in 1893. A Benjamin Strong, pipemaker, voted in Derby in 1775 (Jewitt 1878: II, 62).

17 This term was also applied to the drying of sugar loaves in the sugar-refining industry before the introduction of centrifuge-drying in the middle of last century allowed the production of cheap bulk sugar in crystal form (Buchanan and Cossons 1969: 68; Stiles 1969: 11); to the drying of gunpowder in the early days of its manufacture before it was packed in kegs or put into cartridges (Marshall and Davies-Shiel 1969: 78, 84); and to a heating process in the present-day production of shag tobaccos (Anonymous n.d.[19]: 4th page; Alford 1973: 8).

18 Since this section was written, Southorn's have restarted production and two new small businesses, the Pilgrim Pipe Company at Skegness in Lincolnshire and Eric Ayto at Bramber in Sussex, have started (see p.262 n.4 below). Mr Southorn, who is at present producing only cutties, is looking for an electric kiln (Atkinson in litt. 19 August 1974), and while the other two businesses refused to give this writer any information on their production methods an inspection of the outside of their premises revealed neither a traditional kiln separate from the workshop nor a chimney likely to belong to one inside, suggesting they are using electric kilns. As noted in Section II above, the Van der Want firm at Gouda uses an electric kiln to fire its pipes.

19 Elsewhere, George Ewart Evans records the use of beer in Suffolk to stain furniture, describing one chair as golden-brown in colour from frequent stainings with beer (G.E. Evans 1956: 65, 1965 ed).

A more formal competition - that of seeing who could keep his pipe alight longest - is recorded by Hallgarth (1962: 33; 1969: 34) at various Lincolnshire village festivals, such as the annual race-meeting, the competitors being given a new Churchwarden and a fill of tobacco and the prize being a pound of tobacco. Under Pipe Club of Great Britain rules, clay pipes are used in present-day pipesmoking competitions held in the United Kingdom, the reasons being the much lower cost of clays and the certainty that all competitors are smoking pipes of exactly the same capacity. An incidental advantage is that a clay is much more pleasant to smoke than a new brier, which should be carefully "smoked in". European and World competitions, however, are normally run under the rules of the International Committee of Pipe Clubs, which specify brier pipes: these have to be specially made for each event in order to ensure identical capacity (Pipe Club of Great Britain in litt. 12 August 1975; cf coverages of the [British] National Pipesmoking Championship and of the World Pipesmoking Championship in, respectively, issues nos 22 (Winter 1974-75) and 18 (Winter 1973-74) of Pipeline, the quarterly newspaper of the Pipe Club of Great Britain, front pages, and other features in these issues relating to pipesmoking competitions). Interestingly, Canada's first pipe club, in London, Ontario, is affilitated to the PCGB and used clays at its inaugural competition - shortly before the formation of this club, known as the Pipe Club of Canada, Gordon Pollock of the Manchester clay-pipe firm of John Pollock and Co (see above) had visited interested smokers at London during a North American sales trip (Pipeline no 22 p.6; Pollock in litt. 9 August 1974).

20 Such terms, of course, were not unique to the pipe-making trade. The Lithgow Valley Colliery Company's Pottery Works in Lithgow in New South Wales noted in its 1889 and 1895 catalogues not only that "No risks of carriage will be taken by the Company, nor will allowance be made for breakage or loss in transit" and "N.B. - All risks of Carriage must be borne by Consignees" but added that "All crates or cases will be charged for, and no allowance can be made for returns". In the firm's ca.1906 catalogue it was noted that

> All goods are delivered into trucks at Lithgow Railway Station or into carts at the Company's Works. All risk of carriage must be borne by consignees.

which together with the 1889 catalogue's including two pages of rail rates from Lithgow to a large number of places (up to 281 miles distance) for various categories of goods presumably indicate the goods were delivered FOB Lithgow railway station (Birmingham and Fahy 1974: vii, 3, 5, 34, 35, 62, 28-9).

21 There is no known connection between this John George Reynolds and the Bristol maker John George Reynolds noted 1849-56. Interestingly, at the time of the 1851 census the London Reynolds was staying with a Boston pipemaker, John Chennery (P.K. Wells 1974: 1) - presumably he was only visiting, for he is not known to have worked in Boston and his business is noted in London from 1828 to 1882 (Bloice in Atkinson and Oswald loc. cit.).

22 However, Bloice (loc. cit.) lists a William Boorman a pipemaker in Whitechapel in 1869, so it is possible this Boorman had taken over Thomas Balme moulds, adding his own name but neglecting to alter the heel-marks.

23 A pipemaking firm of William Bush and Co. of London is recorded 1859-62 (Bloice in Atkinson and Oswald 1969: 218; cf also n. 10 above) but there seems no reason why there should be any connection between the two Bush firms. As pipes appear almost invariably to have been sold directly to a retailer, or exported directly to the country involved (p.155), any agent's name on a pipe seems much more likely to refer to an agent at the distributing end than at the shipping end.

24 The Glasgow firms listed are Christie, Davidson, McDougall, Waldie, and White, 5 of the 11 Glasgow firms still working at this time (see Appendix VII). No names are given for the Edinburgh and Aberdeen firms; at present the writer has little information on Aberdeen pipemakers, but there were six Edinburgh firms still surviving in 1900.

25 A similar sort of confusion, though this time wholly based on a

misreading of the source used, occurs when Graves (1969: 52) says that the Dutch admiral Van Tromp had a mahogany pipe inlaid with brass which "opened with a spring on its heel and a hinge on its upper part" and latterly came into the possession of Sir Hugh Walpole. In fact Fairholt (1859: 171), who is being quoted here although Graves does not cite his source, specifically refers to the item as a pipe-case and even shows it with a pipe inside.

26 George Spencer Watkinson jr, a pipemaker in the second half of last century at Market Rasen in Lincolnshire, notes in his journal that some inns gave tobacco - then 3d an oz - free to their customers though others had dispensers in which the customer put a 1d in order to open it (Hallgarth 1969: 34). One of George Ewart Evans's informants, recalling times about the beginning of this century, referred to these dispensers as Ha'penny Screws, a halfpenny buying a screw of tobacco "about enough for three [clay] pipes" (G.E. Evans 1960: 82-3, 1967 ed); and at the turn of last century a rhyme current in the St Jude's pipemaking ghetto in Bristol included the line "'Alfpenny screw in a farthin' pipe" (see p. 750 below). These dispensers are also noted by Fairholt (1859: 231-2) and A. and C. Scott (1966: 70).

27 But some unlikely combinations of occupations turn out to have entirely logical reasons: in Bath, Wilcox (1971: 25-6) notes that C18 brewers were frequently involved with the carrying and coal trades and with pig-farming because the first two involved, like brewing, heavy transport, yards, stabling and carting facilities, and tackle for lifting heavy loads, while the third proved a profitable sideline to use the grain, malt, and hops which remained after the brewing process.

28 Brabner is a new edition of C. Knight; for full details see entry in Bibliography under Brabner.

29 A variety of other uses for clay pipes or clay-pipe fragments is known. An early C18 source recommended placing pipe-bowls on the tops of sticks supporting carnations so as to "kill the Vermin which will lodge in them every Morning" (Richard Bradley's *The Family Dictionary* (1725) trans and rev from N. Chomel's *Le dictionnaire oeconomique* (1st ed 1709) s.v. Carnations, quoted in A. Noël Hume 1974: 23 and 25). Savary des Bruslons (1759-65 ed: IV, col. 200; the account is repeated in Roux *et al* 1762-64: II, 357) recorded that a well-seasoned pipe - "*Pipe grasse*...*d'un brun obscur presque noir*" - ground up and taken in white wine was accounted by some to be "*très spécifique pour le flux de sang*" (this may have acted as a primitive Kaopectate, where kaolin is used to coat the inflamed colon - the ballclay of the ground-up pipe would have taken the place of the kaolin, with the wine being the medium of suspension. The alcohol in the wine would also have dissolved nicotine and tobacco tars from the granulated pipe, and while the tars would have no particular short-term effect on the patient the nicotine could have been taken for its pharmacological effects.) An East Anglian horseman born in 1889 an still alive in the late 1960s recalled some old men curing a horse of hard mouth by putting a heated pipe-stem on the side of the horse's mouth. This was

a very cruel method - though the more normal use of oil of vitriol sounds hardly less so - but deemed necessary if the horse was vicious and could not be used (G.E. Evans 1969: 114, 1974 ed). A more pleasant use for pipes is cited by Mayhew (1861-62: I, 12, 1968 ed), who noted London costermongers in the mid-C19 doing a "pipe-dance", where about a dozen pipes were laid close together on the floor and the dancer placed the toe of his boot between them while keeping time to the music. With the decline of the clay pipe in modern times unusual uses for it have lessened, but one enterprising figure photographer has used a clay pipe as a prop, a certain Elvira recently appearing in Men Only fetchingly displayed in one shot with a Churchwarden (R.C. Clarke 1974: 38). No list of uses to which clay pipes could be put, however, would be complete without noting the one in the diary of Nicholas Blundell of Little Crosby, nr Liverpool, where he described in 1720 having been regaled at Preston by an individual "Playing Trumpet Tunes upon a Tobacco-pipe" (Tyrer and Bagley (eds) 1972: 21). That pipes were used to make penny-whistles seems certain from the recovery of a stem-fragment, unfortunately unstratified, with three circular holes along one surface, from a tinglazed-earthenware kiln-site of the period 1680-ca.1737 at Lambeth (Bloice 1972: 140); a probable example - the illustration does not show the apparent finger-hole quite clearly enough to be certain, though what appears to be this hole lies in a groove on the top of the stem - with bowl attached from Amsterdam and datable to the first half of the C17 (Sleen 1963: 263); and more than 30 fragments with from one to three holes ground or filed into the side from mid-C17 contexts at Fort Orange and Beverwyck under present-day Albany, New York state (Huey 1975). (Huey's reference (1975: 110) to the Lambeth kiln-site find noted above being from the possible site of a Dutch potter's workshop is a misinterpretation of the evidence in Bloice's article; however, James Barston (D 1693), the first owner of the pottery, did have a Dutch apprentice and several Dutch journeymen working for him (Edwards 2974: 35 and refs)).

30 The word "cantril" is not listed in the OED, J. Wright's The English Dialect Dictionary, or dictionaries of earlier English consulted by the National Library of Canada, Ottawa.

31 Oak-Rhind and Oswald have recently examined a number of C17 and C18 Dutch and English bowls for these striations, but with uncertain results so far (Oswald in litt. 10 October 1973).

32 According to a 1900 price-list for Scottish-made clay pipes (Anonymous 1900: 29), White's of Glasgow produced two pipe styles called a Large Hayti and a Small Hayti (their numbers 437 and 438 respectively). Unfortunately, no bowl forms are at present known for these types, but it would be interesting to know if they resembled in any way the "Hayiti" forms illustrated by Heite (1972a: 212 nos 5 and 6) and the Hamiltons (1972: 42 pl 18,Q) - as noted below, it is said that Pamplin pipes at one time were exported to Britain and Europe.

33 Fleming actually refers to "delftware". Tin-glazed earthenwares have a variety of names the use of which is sometimes ambiguous, but in ceramic and archaeological circles the term "tin-glazed earthenware"

is used for the British product; "delft" for the Dutch; "faience" for the French and northern European material such as German and Swedish; and "maiolica" (the i pronounced as a y) for Italian, Spanish, and Mexican. The term "majolica" is restricted to C19 imitations of Palissy ware.

34 The reference in 1969c should probably read figs 11 and 12, certainly not fig 10.

35 Lachapelle-aux-Pots is referred to by Brongniart as Chapelle-aux-Pots, St-Samson as St-Sanson.

CHAPTER 3:
HISTORY OF THE CLAY PIPE INDUSTRY

1 For a similar argument - as to whether tobacco and smoking (amongst other items) reached Africa prior to Columbus reaching America - recently conducted, see C.T. Shaw 1960: 277-89 and *passim*; Inskeep 1962: 174-5; C.T. Shaw 1962; Jeffreys 1963a; Ozanne 1963: 52-60; C.T. Shaw 1964; Jeffreys 1964; Ozanne 1969; cf Jeffreys 1963b, and 1971 with comments.

2 Earl is presumably an error for Marquis: the Marquis in question was the third, who was also fourth Duke of Somerset; he died 21 days after the date of William Gauntlett's lease, and with him the marquisate became extinct.

3 One source (Anonymous 1954a: 1st page) says that the last York firm, given here as G. Waddington and Sons, apparently closed "one or two years" after 1933 and another source (Anonymous 1967: 17th page), probably following the other, gives the date as ca.1933. A third source (R. Hill 1955), however, citing city trade directories, says that the Waddington firm, here given as Thomas Waddington and Son, were listed as pipemakers until 1921 but that they continued in business as drysalters until 1936. It is difficult to decide which account is more likely to be correct, but this writer tends to the latter. The crews of the three American aircraft making the first round-the-world flight in 1924 autographed clay pipes at Brough in Yorkshire while their planes were being overhauled by the Blackburn aircraft firm at their works there (Woodman 1973: 38); according to Woodman the pipes still hang in the bar at the Ferry Inn at Brough, but the present landlord of the inn, who has been there some 16 years, has no knowledge of the pipes (Dixon *in litt.* 16 October 1973).

4 Since this section was written, Southorn's have reopened (Atkinson *in litt.* 19 August 1974) and two small new businesses have opened, one in Lincolnshire and the other in Sussex. However, when visited by this writer in November 1973 the former - the Pilgrim Pipe Company at Skegness - proved to be completely unco-operative, even to the extent of refusing to show him their products. They did say they had been in business "for about two years". Eric Ayto, who has recently set up business at the "House of Pipes" museum at Bramber, near Worthing in

Sussex, also declined to reveal any of his manufacturing techniques when visited by this writer in October 1973, but he did say that they were all self-taught and that he was not familiar with any of the traditions of clay pipemaking; indeed, he indicated he preferred not to hear how other makers produced their pipes as he did not wish to experiment with any new techniques which might upset his present methods, which had been achieved through trial and error. Both in his reluctance to reveal his methods and in his lack of desire to experiment beyond them, Mr Ayto follows the tradition of the small craftsman who has mastered his own techniques by empirical testing: examples of pipemakers achieving a satisfactory technique and tenaciously keeping to it have been noted in Chapter 2 above.

5 According to a manuscript written 1693-1703, the conditions of service of sailors for the Vereenichde Nederlandtsche Geoctroijeerde Oost-Indische Companïe (Dutch United Chartered East India Company) included the supplying of pipes and tobacco (Sténuit 1974: 255 n.29). Recent underwater exploration and archaeology has found 15 wrecks of C17 and C18 Dutch East Indiamen from Norway and Shetland to South Africa, Mauritus, and Western Australia (Sténuit 1974: 253).

6 Slegte is the archaic spelling of the modern slechte, but by a change of meaning rather similar to that undergone by the word "custom" in English when relating to cars - formerly the word meant "special" but now "de luxe" has taken this meaning and "custom" means "standard" - slechte now means "bad". For this reason the older spelling is used here.

7 The possibility that this Dutch bowl form did find favour among east-coast Amerindians gains some strength from an extremely close copy in steatite from Virginia and another in stone from New York state (McGuire 1899: 454-5, figs 78,80). McGuire also illustrates (loc. cit., fig 77) a "pottery" pipe of this Dutch bowl shape from Burr's Hill, Warren, Rhode Island - from where a Llewellin Evans of Bristol pipe is also said to have come (M. Brown III 1972: 10; see 6: VII(b)(4)). Despite a slightly odd description, it appears this pipe is conventional clay pipe; it has apparently no maker's mark, but has a rouletted rim to the bowl and possibly some sort of line round the stem. McGuire says it is English, but there is every indication it is not; as discussed in 6: VII(b)(4) Bristol and Dutch pipes of this period seem to occur together frequently on American east-coast sites.

Atkinson (1972d: 177) has suggested that the heelless but otherwise orthodoxly-shaped Dutch bowls noted by this writer from Louisbourg and elsewhere (I. Walker 1971c: 62, 66 fig 7, 71 fig 12) are Dutch "export only" pipes somewhat similar to the heelless Bristol pipes of the same period (p.13 above). Certainly a survey of illustrated Dutch material would suggest Dutch pipes always came with a heel, but this is certainly not invariably the case with Dutch material found in North America (cf I. Walker 1971c: 111).

8 It seems likely that two Dutch pipe-bowls found during the excavation of a well associated with the French Louisiana fort on the site of Mobile, Alabama- Fort Condé- originally belonged to the French period of occupation. Fort Condé was occupied by the French 1720-63 and

thereafter by the British, Spanish, and Americans until it was razed in 1821. The well was built between 1724 and 1731 but was cleaned out by the British when they took over in 1763. The two Dutch pipe-bowls, both with the Crowned 16 mark (Harris 1971: 71 fig 9, a-b and caption), came from fill associated with the Spanish occupation 1780-1812 but could have been redeposited from a French context, particularly as two Crowned-16 pipes datable to 1739-58 came from a casemate at Louisbourg, Nova Scotia (Omwake 1965b: 40,41), six from Fort Gaspereaux, New Brunswick, datable to 1749-56 (Wylie 1968: 8), and no fewer than 89 from Fort Beauséjour, New Brunswick, where almost two-thirds came from deposits probably associated with the French occupation there, 1751-55 (MacLean 1971: 21-2). However, a Spanish association cannot be excluded, as four Crowned-16 bowls came from the Spanish site of Santa Rosa Pensacola near Pensacola, Florida, and only ca.55 miles ESE of Fort Condé, all probably datable to 1739-63; and the bulk of the recovered pipe material from the site was Dutch, indicating the Spaniards when obtaining pipes used Dutch ones as did the French (Omwake 1965d: 44, 49). The two Fort Condé Crowned-16 pipes are closely similar to the Canadian French material, but not enough is known at present about Dutch bowl typology to say definitely that they are mid-C18 as opposed to late C18.

9 Bastien (1973: 3rd chapt) talks of one factory at Givet in 1848 employing 350 workers and that twenty years later this number had more than doubled, but this is probably an inaccurate summarizing of the above figures.

10

> *Empoignant une chope à fortes cannelures,*
> *L'hypogastre et le col cambrés, une Gambier*
> *aux dents,....*

The reference is in Rimbaud's *Oraison du soir* (cf Jean-Léo 1971: 18; Herment 1954: 34-5, 1965 ed), not in a poem of Verlaine as Fresco-Corbu (1962: 1446) asserts, though Verlaine in his *Plus d'infirmière*... does refer to a Gambier (cf Jean-Léo 1971: 17-18);

> *Plus d'infirmière, plus d'infirmier:*
> *Je suis un malade modèle*
> *Qui fume à l'aise sa Gambier*...
> *Et ma jambe reste fidèle.*

Rimbaud also refers to the Gambier firm and to Jacob pipes in his poem *Paris*, indicating the association of Gambier pipes with that city even though they were not actually made there (see above). (Rimbaud text from *Rimbaud*: *Oeuvres* (Editions Garnier frères, 1960), the Verlaine from *Verlaine*: *Oeuvres poétiques complètes* (Bibliothèque de la Pléiade, 1962).)

11 Cf Verlaine in his *Tête de pipe*:

> *C'est une face avec un casque en cône tronqué*,....

12 Rimbaud also uses the term "onnaing" to refer to a pipe (cf Jean-Léo 1971: 18) - in *A la musique*, written in 1870:

> *Epatant sur son banc les rondeurs de ses reins,*
> *Un bourgeois à boutons clairs, bedaine flamande,*
> *Savoure son onnaing d'où le tabac par brins*
> *Déborde - vous savez, c'est de la contrebande;* -

13 Bastien (1973: 3rd chapt) mentions the firm Hippolyte Léon Bonnaud, but claims it closed between 1920 and 1930, as, he says, did Fiolet, Duméril-Leurs, Gambier, and Scouflaire. These dates, however, are more or less inaccurate for all the companies named (see above). Bastien may be right, however, in claiming Hippolyte Léon Bonnaud had a major export trade, particularly to Africa and the United States, for a 1900 catalogue of the firm (Jean-Léo 1971: in end section of illustrations, no pagination) notes "articles spéciaux pour l'exportation". The firm's products, to judge from the catalogue, appear to have been entirely stub-stemmed pipes in red, brown, and black.

14 Jean-Léo (op. cit. 31) says 300 examples of these pipes were made, but in catalogue no 17 (1972) of Le Grenier du Collectionneur (item 449) it is noted this is an error, the correct figure being as above, 40.

15 The two sites are very close to each other but on opposite sides of a stream, and at one time both factories had owners by the name of Peterson (Thomas and Burnett 1973: 7). According to Thomas and Burnett (pp6-7) their site was owned by an N.S. Davis prior to the Petersons; according to Murphy (1974: 250) the Akron Smoking Pipe Company site was also owned by an N.S. Davis at this time, which suggests ownership of the sites, if not the sites themselves, has been confused.

CHAPTER 4:
PIPEMAKING IN VARIOUS CENTRES

1 This list remains the only comprehensive list of English pipemakers, though as noted above, considerable subsequent work has been done in a number of areas of England. Oswald 1970b: 227 gives revised numbers for makers now known in a number of regions, including Liverpool and the next centre to be considered, Chester, but as these numbers are given in half-centuries and not decades, as needed in this examination, the 1960 lists have been used here. The 1970 figures for Liverpool are 33 for the period 1700-50 and 86 for the period 1750-1800 - the comparable figures given above from the 1960 lists are 28 and 70.

2 Care should be taken in this reference and in others in Donnan to differentiate clay pipes from pipe beads, which latter appear on a number of occasions in cited texts.

3 According to Atkinson (1966: 276 n.2) whiting-manufacture was a common sideline of pipemaking - it appears to have been so at Worthing, Sussex, where putty-making was another sideline (Atkinson loc. cit. and 272, 273).

4 Berry (1963): 8) says that Swallows at Rainford nr Liverpool were producing over 15,000 pipes a day ca.1903, which for a six-day week gives a total of over 90,000.

5 The same indignity was inflicted on Charles I while imprisoned at Westminster during his trial there in January 1649 (Fairholt 1859: 110). Gardiner in his History of the Great Civil War 1642-1649 (Gardiner 1893 ed: IV, 318) notes that "Ever since the commencement of

the trial he [Charles] had been annoyed by the presence of soldiers drinking and smoking in his bedroom" but that Hacker, who commanded the soldiers, had been induced to give the king the privacy of his bedchamber a few nights before the trial ended, and this form of insult was not repeated. (This evidence comes from Hacker's trial, and the behaviour was probably out of vindictiveness, just as it was in the case of Montrose, where the notorious Weir of Hermiston ordered Montrose's guards to be with him at all times (Buchan 1928: 374).)

6 There does appear to have been a rapid acceptance of the clay pipe in both Scotland and Ireland in the C19, to the extent that today when clay pipes are mentioned the average person still probably thinks of Scottish and particularly Irish labourers (cf J. Peterson 1968: 13) and is very unlikely to know that in the C17 and C18 the Scots and Irish had been as famed for snuff-taking as they were later to be for using clay pipes (see 1: VII(b)). The association of clay pipes with Irishmen appears to have been well established by the mid-C19, for Rosen (1973: pl 406) identifies a man with a flat-topped conical hat and a pipe in an 1852 *Punch* cartoon "A Court for King Cholera" as representing an Irishman.

Fleming (1923: 237-8) recounts the use of clay pipes at wakes in Scotland and at the entertainment after the funeral, where pipes referred to as "wake" or "dredgy" (sometimes "dreggy") pipes were passed round the company. (Fleming gives the origin of the term "dredgy" from the word *dirige* as it occurs in the fifth Psalm in Latin, the sixth verse of which has the petition "*Domine dirige nos*" which Fleming says was repeated throughout the funeral service as an antiphone. "Dredgy", Fleming notes, was the name given to the feast after the funeral. As usual, Fleming is muddled - the phrase is in fact "*Dirige, Domine, Deus meus*,...and the reference is to Psalm 5 verse 8.) Certainly this tradition is still remembered, and Gregor, writing probably shortly before 1874 (the accounts had originally appeared serially in the *London Scotsman* and subsequently in expanded form in the *Peterhead Sentinel*) and describing "the olden time" in NE Scotland, notes the tradition of supplying new pipes and tobacco, "specially procured for the occasion", at wakes, which were sometimes irreverently known as "tobacco nichts" in consequence (Gregor 1874: 141, 1973 ed); Fleming (1923: 237, 238) notes that "Dredgies were in quite common use throughout Scotland a hundred years ago [i.e. ca.1820]" and that "About seventy years ago [i.e. ca.1850] 'dredgy' pipes were still in use in country districts". Even when he was writing, he continued, it was customary in some country places, "especially after the funeral of a coal miner", for there to be pile of new clay pipes on a table in his home, where the mourners would sit round and smoke in silence as a token of sympathy and respect for the deceased. As Fleming notes and as has already been recorded above, Burt in the later 1720s described smoking at wakes, observing that in the room "there are usually several Pyramids of Plumcake, Sweetmeats, and several Dishes, with Pipes and Tobacco; the last is according to an Old Custom, for it is very rare to see any Body smoke in Scotland" (Burt 1754: I, 230, 1874 ed). Elsewhere, as noted in 1:

VII(b), Burt indicates snuffing was the usual method of taking tobacco at this time, and his description of wakes certainly suggests clay pipes and smoking were largely restricted to wakes; but Grant in her *Highland Folk Ways* cites Sir Eneas Mackintosh of Mackintosh recording (in his *Notes, Descriptive and Historical, principally relating to the Parish of Moy in Strathdearn* of 1774-83) that in Strathdearn - the middle reaches of the Findhorn - at any rate the ancient custom of dancing at wakes had been abandoned by 1740 and when relatives and friends came to watch the body "plenty of whisky and snuff goes round, the young folk play at several country games while the graver sort tell tales of Ghosts and Hobgoblins" (Grant 1961: 368), which clearly implies tobacco was not smoked but perhaps also suggests that relatively sedantary behaviour, into which smoking could better, and perhaps later did, fit, had begun to replace more vigorous activity. However, Burt in another description of a wake, held for a Highlander who had died next door to his lodgings "within less than a Quarter of a Mile of Edinburgh, before I had been among the Mountains" (i.e. ca.1725), notes those assembled danced through the night, suggesting smoking and dancing existed together at wakes.

The association of clay pipes with wakes in Ireland is noted by 1832 (Weld 1832: 511), when it is recorded that the poor-quality pipes produced at Knockcroghery in Co. Roscommon in central Ireland were used chiefly at wakes, "where the low price, and the small quantity of tobacco required to fill them, insure them a preference". As late as 1939 and no more than 20 miles from Dublin, at Poulaphouca on the Co. Kildare-Co. Wicklow boundary, investigators recording local folklore prior to the flooding of the area to form a reservoir recorded that pipes, tobacco, and snuff were distributed at wakes among those who wished them, but that "wake-games", though remembered, were no longer played - one game recorded involved one of the players being sprayed with a mouthful of water (Ó Súilleabháin 1976: 204). The quasi-ritual overtones of this use of pipes might be worth examination by a folklorist - conceivably the special use of dredgy pipes goes back to a time when they, and tobacco, were rare enough to be used only on special occasions.

7 The addresses of these makers varies from St Mungo St to St Mungo Lane to South St Mungo St and back to St Mungo St, though the number remains the same. St Mungo St and St Mungo Lane are not the same, but here it seems likely the Directory entries have been confused.

8 Lafrenière and Gagnon (1971: 18) imply pipes marked "Murray-Davidson, Scotland" were found at a site in Quebec City, but their illustration (photo 63, p.91) does not bear this out. No such mark is known to this writer.

9 A stem fragment marked BANNE[RMAN] was found at the Hoyt-Barnum House site in Stamford, Connecticut (Poirier 1974: 13), but the absence of the place of work prevents certain attribution to the Glasgow Bannermans, there being a Montreal pipemaking family of this name in business from 1858 to 1907 (I. Walker 1971d: 25; see also pp359-61 below).

10 At the Montgomery Lake site Number 4, Ontario, in the upper Ottawa

valley, a stem marked McLean but with no place of work indicated was found (B.M. Mitchell *in litt.* 2 August 1969) and at the Grande-Chute site, Quebec province, also in the upper Ottawa valley, a stem marked P. McLEAN, again with no place of work indicated, was recovered (D.S. Robertson *in litt.* 4 and 11 July 1971). The Cuming Museum, London, has a pipe with R. McLEAN on one side of the stem and AQUARIUM on the other from Crieff in Perthshire, Scotland (Oswald files). As the bowl has newts or similar creatures on the front and rear mould-line the "Aquarium" presumably refers to this, not to the place of that name which occurs in the Astérix books. No McLeans are recorded as pipemakers in either Glasgow or Edinburgh; if they are Scots, the chances of their being, say, Aberdonians cannot be excluded as no work has yet been done on Aberdeen pipemakers though there certainly were some (cf 2: VII and Anonymous 1900).

11 The inscription McAVOY's LD is in very small fine sharp letters, a broken end of the stem running through the last letter. It has been impressed after moulding but before trimming by a hand stamp, and the letter-size and -shape are very close to the hand-stamped marks of the Broseley firms of Southorn and Smitheman. The LD presumably stands for Limited; whether it was followed by more cannot now be known, but the place of manufacture may have been added. This form of mark is unknown to this writer except on pipes of the Broseley firms noted aove and on an illegible fragment in Gloucester museum apparently of Gloucester manufacture (Gloucester pipemaking has Broseley influence), and - *across* the stem, not along it - a Ring of Bristol stem from North America; it has no known parallels in either Glasgow or Montreal material.

12 R.L. Wilson (1971: 29, 67 fig 15,e) notes an almost-whole TD pipe with 78 DIXON & SONS on one side and MELBOURNE on the opposite from Fort Fetterman, Wyoming, occupied 1867-82. A 1900 price-list of Scottish pipes (Anonymous 1900) indicates pipe-types with the name "Melbourne", to which this inscription presumably refers, in the same manner as the WOODSTOCK PIPE and VOLUNTEER marked McDougall products noted in 1: II(g). It seems most likely this is a Dixon's of Montreal product, but if so it differs from all those so far recorded with Montreal marked on them by having the & SONS following the maker's name. Dixon's, as noted above, was called W.H. Dixon and Co, and also the Canada Pipe Works, but there is no evidence so far for a name including "& Sons". However, no other maker's of this name are at present known. By a strange coincidence there is a HENDERSON'S-marked pipe in the W.D. and H.O. Wills Collection at Bristol: this example is at present unique in being of a buff-firing clay. Whether it was actually found in England is unknown. As noted in n.9 above a stem-fragment marked BANNE[RMAN] also occurred at the Hoyt-Barnum House site in Stamford, Connecticut (Poirier 1974: 12), but the absence of the place of work prevents certain attribution to the Montreal Bannermans, there being three Glasgow makers of this name in business in the 1840s, 1850s, and 1860s one of whom made the stem-fragment found with that name and GLASGOW on it in North Carolina (see p. 352 above and Appendix VII). Care should also be taken not to confuse Ford of Montreal pipes with products of

the London Fords who supplied the Hudson's Bay Company with pipes for much of the C19 and who are discussed in the following section.

13 Critchley and James, in their account of the Ratcliff Highway murders of 1811 referred to below, identify Ratcliff Highway with Stow's "filthy strait passage, with alleys of small tenements, inhabited by sailors' victuallers" (Critchley and James 1971: 6); but it seems quite clear from Stow's descriptions that here he was talking of recent riverside development to and beyond Wapping and that Ratcliff Highway was the road from the City to

> Radcliffe vp East smithfield, by [i.e. past] Nightingall lane [modern Thomas More St]...to the Mannor of *Bramley*...and to the Mannor of Shadwell,...[where] there hath been of late, in place of Elme trees many small tenements raysed, towards Radcliffe"...(Stow 1908 ed: II, 71).

14 On this plan White Horse St is consistently called Whitehart St. The White Horse inn, which still flourishes (FIG 133) near what is now the NE corner of Commercial and White Horse Rds, is marked as the White Hart. Presumably the road derives its name from the inn.

15 Miss Church recalls visiting her uncle, Ebenezer Church jr, and watching him mould pipe-bowls in the form of various notable people. Ebenezer Church jr was a great collector of pipes and had over 5,000 different specimens in his collection. According to a brief article by him in the 17 September 1928 issue of (probably) the London *Evening News* ("My Pipe Rack of Celebrities" by E.J. Church; original in Miss Church's possession, copy in possession of this writer), it included "pipes of every shape and size and pipes from every corner of the globe." After his death in 1931 his son, another Ebenezer, inherited the collection, but Miss Church has unfortunately lost contact with him; he was the Ebenezer Church recorded back at 23 Northdown St from 1931 to 1937 as an "Arth [sic] scientific instrument mkr", sharing the premises with a William Green, a laboratory apparatus maker who was there 1924-33 and whose business, as Green and Moseley, continued there up to 1935 (in fact, it is unlikely Church was there as late as 1937, for the 5 ft to 1 mile OS plan of that year shows nos 23 and 25 no longer standing and Miss Church (*in litt.* 20 April 1974) notes her research indicated the properties were demolished ca.1934). Ebenezer Church III subsequently moved to Colindale in NW London; if still alive he would be in his 80s, but he is not listed in the current London telephone directory. The reappearance this late of a member of the Church family in their former pipemaking premises in interesting, for it suggests the family continued to own this property until the end, presumably renting it out after 1894 - a number of businesses do appear at this address at various times after that date.

16 As observed in the preceding footnote, the 1937 5 ft to 1 mile OS plan of the area shows nos 23-25 Northdown St had been demolished by that date. However, this plan has random properties numbered, from which the exact position of nos 23-25 can be proved beyond doubt, and by superimposing this plan on the OS plan of the same scale of 1871, these premises can be shown to have been the two properties immediately south

of the architectural front shown in FIG 139. Comparing the 1871 OS plan with the 1819, 1813, 1807, and 1799 editions of Horwood's plan, it is almost certain that the unnumbered property shown on the 1819, 1813, and 1807 editions (which for this particular area are identical) on the west side of North St separated by a space about the size of one property from the rest of that side of the street to the south, which is numbered 9-15 running southwards, is the property in question.

There is, however, one complicating factor. Miss Church notes there was a passage between nos 23 and 25 and recalls her father telling the family it was originally part of a public footpath to Pentonville Hill: no reference to Pentonville Hill has been located (presumably the name is not old, as the Penton estates were only becoming built up and developing into a ville in the late C18 and early C19), but the 1871 OS plan does show a passage between nos 23 and 25 (then nos 27 and 28). It is depicted only as leading to the back of no 27, but could have originally continued west by way of the now built-over alleys of Crescent Place and Crescent Avenue into what was called last century Alpha Place but was subsequently renamed - presumably by someone with a sense of humour - Omega Place, a cul-de-sac running off Caledonian Rd. That there was indeed some sort of public footpath or right-of-way here is suggested by the gap in the development northwards of both the west side of North St and the east side of Providence Row (an alley west of North St and running parallel to it) shown on the 1807 and subsequent editions of Horwood and already noted above as separating what is believed to be the future Ford premises from the properties numbered 9-15 North St. However, the problem is that if this property first appearing on Horwood's 1807 plan were numbers 27-28 (23-25 after 1891) the passage should be shown running through the block, not immediately to the south. As the seven properties numbered 9-15 on the west side of North St in 1807 appear to correspond to the seven properties shown south of number 27 on the 1871 OS plan, number 9 (immediately south of the gap) cannot be number 27 renumbered: as number 27 has to be south of the gap, or at any rate south of the right-of-way, however, it would appear that either Horwood erred in placing the right-of-way or that the property appearing north of the gap on the 1807 plan is only number 28 (or perhaps in view of its size, numbers 28 and 29) and that number 27 was subsequently erected in the gap, with the passageway recalled by Miss Church being built to perpetuate the right-of-way.

The 1807 and subsequent Horwood plans show the east side of North St more or less developed up to the line of Collier St; the 1799 edition shows less development - only the first eight properties - on this side, but on the west side the only differences between 1799 and 1807 shown are the absence of the property identified above as probably the future Ford premises and the absence of the southernmost property (number 15) from the 1799 plan. However, while the 1807 edition shows the first eight properties on the east side numbered (northwards 1-8) and the first seven on the west (northwards 15-9), the 1799 edition does not number the properties on either side, possibly suggesting they were either in process of construction (which the absence of future number 15 would also suggest) or built but not yet occupied in 1799 but occupied by 1807. If so, and the same rationale was applied to giving numbers on the 1807 plan, it is possible the probable future Ford premises was only just about ready for occupancy in 1807; however, the 1813 and 1819 editions do not have this premises numbered either. This period, of course, coincided with the Napoleonic Wars, which checked building construction (George 1925: 88, 1966 ed).

John Ford and the Churches also owned nos 12-13 (pre-1891 numbering; nos 6-4 post-1891 and nos 3-2 on Horwood's 1807 and subsequent plans so far as can be determined) on the east side of the street; Ford had bought the properties in 1844 from a Henry Watson, wheelright, of South Mimms in Middlesex and in 1867 another John Ford, a corn-chandler of nearby 31 Leeke St, had sold them to Ebenezer Church (information from Miss E.J. Church *in litt.* 30 September 1973 and 20 April 1974); these numbers never appear in the directories and so presumably were always private residences. Miss Church also notes (*in litt.* 1 January 1975) that Ebenezer sr and Sarah Church had no fewer than 17 children as well as a number of servants, which latter reinforce the impression that the Ford-Church business was in its heyday a prosperous one. In the indenture of 1844 describing the sale of these properties to Ford they are noted as part of a development by one Samuel Coney on land leased him by Henry Penton as early as 1784 (what is now Pentonville Rd, off which North St was built, was part of the New Rd made across fields in 1756-57 to link Paddington and Islington (George 1925: 75, 1966 ed)).

17 Cullen's book, though written at times in an irritatingly journalistic manner, has good social background material on East London at this time; whether his theories on the Ripper are as good is, however, a different field of enquiry.

18 The calabash, with which Holmes is often associated, is not specifically mentioned in any of the stories in the traditional Holmes canon (M. Harrison 1958: 95, 1971 ed - in a calabash pipe the gourd is normally fitted with a meerschaum cup (Weber 1962: 36-7)). However, for an explanation of Holmes's calabash see the recently-discovered and newly-published Watson manuscript, *The Seven-Per-Cent Solution* (Meyer 1974: 107-8, 1975 ed). There are a number of references to "his clay pipe" ("The Adventure of the Blue Carbuncle") and "his black clay pipe" (*The Hound of the Baskervilles*, "The Red-Headed League", and "A Case of Identity"), with what is certainly the same pipe referred to again in the last-named story as "the old and oily clay pipe". In "The Adventure of the Copper Beeches" Holmes smoked "the long cherrywood pipe which was wont to replace his clay when he was in a disputatious rather than a meditative mood"; interestingly, however, when disguising himself as a "rakish young workman" in "The Adventure of Charles Augustus Milverton", Holmes also adopted a clay pipe, lighting it at the lamp before going out (all these stories, except for *The Hound of the Baskervilles* (1901-2) and "The Adventure of Charles Augustus Milverton" (1904), appeared in 1891 or 1892. Holmes also smoked a brier - "his old briar-root pipe" (*The Sign of Four*, 1890) and "an old brier pipe" ("The Man with the Twisted Lip", 1891) - and a "long

cherrywood pipe" (see above), as well as a pipe of unspecified material with an amber stem ("The Adventure of the Priory School", 1904) (in view of Holmes's comment elsewhere on the prevalance of sham amber (see p.627 below) we may be quite certain this pipe's stem was of genuine amber). Holmes also smoked cigars and cigarettes; he also took snuff.

19 She also had a "red cigarette case with white metal fittings", but no contents are noted.

20 Morrison, who was born in 1863 and lived until 1945, became an authority on Japanese painting and was also the author of a number of detective stories, including some recently republished and televised in "The Rivals of Sherlock Holmes" series (H. Greene (ed) 1970: 16 and chapts 2 and 4, 1971 ed; 1973: chapts 2 and 4, 1976 ed). For an account of what little is known about Morrison's life see Keating 1969.

21 The longest-occupied premises, or at least site, known to this writer on which pipemaking was carried out is probably that representd by the property now known as 21 George St in Colchester (Gant 1961b: 49; illustrated in Harley 1963: fig 11) and still standing. The last pipemaker in Colchester vacated these premises between 1907 (Christy 1907) and 1910 (Harley 1963: 36) and claimed in 1906 (Benham 1906) that the premises had been used uninteruptedly for pipemaking back to the seige of Colchester in 1648 during the Civil Wars. The same number on George St was certainly being used in 1801 by a long-time Colchester pipemaker and it is probably this premises that is noted in a sale of pipemaking implements in 1759 on this street (Harley 1963: 35-6). Gant (in litt. 31 August 1970) believes there is evidence to prove the tradition of pipemaking on the site back to the time of the Civil Wars.

CHAPTER 5:
PRODUCTIONS COSTS AND WAGES

1 A 1965 price-list for the products of the American Clay Pipe Works of New York (who after 1959 had had their products made for them in their moulds by McDougall's of Glasgow, so that the 1965 prices must reflect the cost of transporting the finished articles across the Atlantic) shows a remarkable range of costs, but excluding what amounted to miniature pipes (those with stems 3-1/4 ins and 3-1/2 ins long, which could be as cheap as $4.80 a gross, or slightly under 5 cents each), "TDs" with 6 ins stems sold at $8.00 for three dozen (ca.$2.67 a dozen); "Scotch TDs" with 5 ins and 6 ins stems cost $12.00 for three dozen ($4.00 a dozen) though these pipes were not available at the time the writer was supplied with the price-list; "Bog Oak" pipes with modelled harp and shamrock (presumably the type shown in the firm's undated catalogue Anonymous n.d. [11]: 6, 3rd from top) and a 4-1/2 ins stem cost $13.50 for three dozen ($4.50 a dozen); and "Churchwardens" of unstated stem length were listed (though again they were not available when the writer received the price-list) at $45.00

per dozen, or $57.00 for a dozen individually wrapped. Even the lower of these two Churchwarden prices is extremely high - $3.75 each - and must reflect the fragility of these long-stemmed pipes. (The price-list also had "Porous Clay Pipes" which coloured like meerschaums at $18.00 for three dozen of assorted styles, and three styles of clay pipes with "hard rubber" mouthpieces which were advertised as smoking like real meerschaum and cost $36.00 a dozen (American Clay Pipe Works *in litt.* 6 and 20 December 1965).)

In 1850, two gross clay pipes at Fort Union, New Mexico, were listed at a cost (i.e. wholesale) price of 33-1/3 cents a gross (ca.2 3/4 cents a dozen); and the following year two and a half gross at Fort Alexander, Montana, were listed at the same figure (cited in G.H. Smith 1972: 155). At Fort Laramie, Wyoming, clay pipes were sold in 1846 at 50 cents each (Beaubien 1951: 13, citing *The Journals of Francis Parkman*). The sources of these pipes, however, is not stated, so it is difficult to know whether these prices can be compared to mid-C19 prices noted below from English and Scottish sources. There is also the problem of converting meaningfully from American currency to sterling, and in addition to the cost of trans-Atlantic shipment (assuming a British origin) there would have been the probably very high cost of transport from Atlantic or Gulf of Mexico ports to the West, a cost which of course would have had to be borne even if the pipes had been made in the eastern United States or Canada.

2 The wording of the original is slightly ambiguous. It reads: "All Plugs Twopence per gross extra over and above the price of the pipe, and for all pipes made of prepared clay Fourpence per gross extra for straights, and Sixpence extra per gross for all bent bowls". This last could possibly be interpreted as meaning 6d a gross extra for all bent bowls regardless of the clay used, but this seems unlikely because "bent" pipes are already on the price-list (e.g. W. White of Glasgow's no 68 (Fig 9) called a Bent Harp) at costs per gross entirely within the average price range. Presumably "bent bowls" must have been more difficult to make with "prepared clay" than were "straights", which latter term one assumes means straight-stemmed pipes.

3 Later, when tabulating the capital and income of street-sellers of manufactured items Mayhew said (vol I, p.485) that as far as he could ascertain there were four "sellers of clay and Meerschaum pipes" in the metropolis.

4 Note however, that the connection between this firm, which is recorded in business from 1823 to 1876 (R. Hill 1964), and that of William White of Glasgow alleged by Fleming elsewhere (p.243) is probably incorrect - Fleming was probably thinking of the Edinburgh and Glasgow firms of Christie, which were connected.

5 Whatever "Hunter's Pipes" were, they appear to have been a long-lived variety and one popular in Canada, for the Hudson's Bay Company had them in stock in 1871 (*ex info.* Miss L. Sussman, Research Division, National Historic Parks and Sites Branch, citing Hudson's Bay Company Archives A.12/44). They are also listed - as "Hunters" - among the products advertised by the London firm of William Thomas Blake in 1877 (Fresco-Corbu 1964: 1289), and a 1900 price-list of Scottish pipes

(Anonymous 1900) notes at least two Glasgow firms, McDougall's and Davidson's, producing various types of Hunter pipes at that time. The prices given were variously 9d and 9-1/2d a gross, which was at the high end of the range for the average run of pipes listed. The same list also notes a number of Glasgow and other Scottish firms producing various "Huntsmen" pipes, though whether this is a related type is unknown. They were consistently listed at 9d a gross. Much earlier, in 1812, a group of Bristol pipemakers - Samuel Richards jr, Joseph Edwards jr, William Okely, Israel Carey III, R.F. Ring and Co, and Ring and Cookworthy - were advertising "Hunters" at 1s4d a gross (photocopy of a sheet in the Bristol Pipemakers' Guild Book - original in private hands and not available for examination - noting "Hunters Ditto" at 1s4d a gross under an entry beginning "Ne..." but otherwise obscured which cost 1s6d a gross). Compared with other evidence for the cost of pipes at the beginning of the C19 these prices - ca.1-1/4d to 1-1/2d a dozen - seem low, but there is evidence (see below) that Bristol pipes as a whole were cheaper than, for example, London pipes at this time. An English brier pipe firm, The Falcon Pipe Group Ltd, produce a Hunter model of their Falcon pipe, one of their aluminium stem and humidome pipes, but Hunter here does not refer to a bowl form but to the quality of brier used, the Hunter being straighter grained and without the picking and patching treatment used, on their Falcon Standard bowls (Falcon Pipe Group Ltd *in litt.* 5 February 1974).

6 Probably all Hudson's Bay Company pipe-suppliers were London makers. Their suppliers for the period 1781-1806 were the firm of Pothill under a number of variant names (Pothill and Co, Rogers and Pothill, Pothill and Rogers, N. Pothill, N. and R. Pothill, N.R. Pothill; also Rogers or Rogers and Co alone 1790-92 and 1794): no Rogerses makers have been identified in this period, but N.R. Pothill is recorded 1800-05 - as Pohill - at Lower East Smithfield, East London (Bloice in Atkinson and Oswald 1969: 223).

CHAPTER 6:
BRISTOL

1 Another example of duplication from the Bristol Apprentice Rolls is the apprenticeship of Job Ockford, son of pipemaker Samuel Ockford. On 1 October 1700 there is an entry of his apprenticeship to Philip Grubb, cooper, and his wife Katherine; and the entry is repeated on 7 October 1701, Job's surname appearing as Oxford.

2 Because the apprentice-roll entries for 1658-59 and 1661-67 are lost it is impossible to give the exact numbers of apprentices taken. The figures above include those whose apprenticeship record is missing but whose freedom is recorded, the burgess rolls noting the master involved. However, there must have been other apprentices who for one reason or another never completed their apprenticeship and are thus unknown.

3 Dinner being used in the sense of the principal meal of the day, which at this time was taken in the middle of the day.

4 As noted in the Preface to this published version, the existence of a "Guild Book" - more properly simply a jotter primarily of apprenticeship entries and a few other pieces of guild business over the period 1709-66 but with extensive secondary entries unrelated to the guild covering the period 1789-1823 (cf n. 11 below) - became known to this writer after the completion of the original thesis text; but for reasons outlined in the Preface the use of information from this book has been virtually confined to relevant parts of the first volume of this present version only.

5 This right appears to have been subsequently reinstated, however, for Latimer (1887: 51-2) referring to events of 1812, notes Mayors had this right "by ancient custom" and retained it until 1835 (cf an instance in the 1740s, Latimer 1893: 260).

6 For a description of the closely similar London apprenticeship and freedom rituals in the mid-C18 see R. Campbell 1/47: 304-5, 1969 ed.

7 Though Williams appears to have returned, for he is listed in the 1722 poll-book as a pipemaker living in St James parish.

8 Nott and Ralph actually say the officials were from the "pipemakers' company", but this cannot refer to the Bristol pipemakers' guild for it was not founded until the following year, and it is inconceivable that Fox would have been permitted to behave as he did and that the city would have paid so little heed to the Excise officials had the officials represented any city or guild authority. Latimer (1900: 72) notes that the Long Parliament imposed an excise duty on "tobacco pipes of all sorts, to be paid by the first buyer, for every grosse four pence" in July 1644 which may conceivably have been the tax referred to here if the onus was on the seller - who would also be the maker - to collect and pass on the tax to the authorities.

9 Latimer dealing with the C17 (1900: 496) says the ordinance against non-Bristolians was ordered to be abandoned in 1703, but dealing with the C18 (1893: 20-1, 116-7, 176) clearly indicates either this was not so or that the law had been reintroduced. Rogers (1949: 68-70) appears to follow Latimer 1900.

10 But see now Preface.

11 As noted in the Preface, the C18 Guild Book which became available to this writer after the completion of the original text of this thesis appears to have been latterly in the possession (apparently by 1789 and certainly in the 1810s and into the early 1820s) of a Mr Joseph Edwards, who used the book as a general ledger, scrap-book, and notebook and is certainly the Joseph Edwards jr, pipemaker, F 1774 and recorded working - initially with his father Joseph sr (F 1747, fl 1792, prob. D by 1794) - on Temple St between 1791 and 1823. As noted in the Preface, it is possible Joseph Edwards sr was one of the last officers of the guild and kept this particular book (and even others) after the dissolution of the guild (the Joseph Edwardses were third and fourth generations in a pipemaking family going back to Henry Edwards A 1689 F 1699 whom the Guild Book notes as Master of the guild in 1712). In any event, the last entry of guild business in the book is dated

1766; and the use of the book from 1789 variously as a ledger for coal sales (Joseph Edwards jr appears to have been in this business as well as in pipemaking) and other accounts, a scrap-book for a wide variety of items, a diary, and a notebook for information on Bristol history and for various remedies, chemical descriptions, and a "Receipt for Killing Ratts", as well as the lack of any further entries of guild business, does suggest the guild was no longer in existence by the end of the C18.

12 In the Staffordshire pottery industry, however, the very scattered evidence of formal apprenticeships in the C18 suggest that there was a small weekly wage, graded in some measure over the apprenticeship period, together with the provision of a few specified items of clothing, took the place of the master's earlier obligation to supply all that was necessary for the apprentice's upkeep (Weatherill 1971: 96-8).

13 Grants from this fund continued well into the C19 - Pountney records (1920: 329) a grant of £2 with an apprentice potter in 1830.

14 Alvey (1973: 35) notes the apprenticeship of the son of a Chesterfield ironmonger to a Nottingham pipemaker in 1724[/5?] for seven years "in consideration of 1d", but unfortunately it is the only Nottingham pipemaker apprenticeship entry quoted, so that no comparisons with other entries can be made to see if such a low sum was usual.

15 The figure of 347 pipemaker apprentices is for those noted from the apprentice rolls. The subsequent discovery of a Guild Book listing apprenticeships over the period 1709-66 (see Preface) has added to this number, but these additions have not been included here. A brief survey of the additions, however, appears to reinforce the conclusions drawn here regarding the occupations of pipemaker apprentices' fathers and also the conclusions noted on pp588-9 below regarding the counties of origin of pipemaker apprentices' fathers.

16 Bateman and Newton did not vote in 1747 either, though as noted above both did so in 1754.

17 Prior to 1918 general elections were spread over a period of weeks: Latimer 1900; 1893; and 1887 give dates and details for C17, C18, and C19 Bristol elections respectively; additional information comes from the Interim Report of the Committee on House of Commons Personnel and Politics 1264-1832 (July 1932) and Appendix IV of J.F.S. Ross's Elections and Electors (1955).

18 No poll-book for Bristol later than that for 1852 has been found by this writer, though Oswald (1960a: 73) cites Edward Hill, known to have been working 1850-76 (see Appendix IX), as appearing in an 1868 poll list - there were two elections in Bristol that year.

19 There are a number of errors and misprints in Oswald 1960a, and there are more pipemakers listed by Oswald as voting in Bristol in 1722 and not identifiable from other sources than the four listed above. These other problems have been resolved in correspondence, however (Oswald *in litt.* 6 January 1972). Of the four listed above, John Macey must be John Macey sr (A 1691, F 1700, fl 1726). William Haynes may have some connection with the Henry Haynes recorded as a pipemaker voting in Bristol in 1734 (see below), though who *he* is is a mystery. Israel

Carey (not listed in Oswald 1960a; supplied to writer subsequently) presents a problem. There are several generations of a family Carey making pipes in Bristol from the mid-C18 into the C19, and two were called Israel (one A 1748, F 1756, fl 1787, D by 1791; the other F 1812, fl 1812-29); but no Carey pipemakers are known in Bristol earlier than the Israel Carey F 1756 whose father, Richard, had been a Bristol weaver. There was an Isaac Cary (an alternative spelling of Carey also occuring in Bristol records) F 1672 in York (R. Hill 1955; Oswald 1960a; 64 as Carey). Alexander Cherrington is discussed below.

20 The Guildhall copy was printed for T. Cadell and E. Ward, the British Museum copy by E. Farley. The Bristol Museum copy of the 1734 poll-book, which was printed by Felix Farley from the original poll-book of one Mr Coster, has a page of errata added because of the

> many Errors, such as the mispelling of Persons Names, Places of Abode etc. in the transcribing, as well as printing. This being done in so great a Hurry, as not to admit of Time to get Information of Errors, or of comparing each Sheet with the Original as it was ready for the Press, the judicious reader is desir'd to accept of the following Errata gratis, and to correct the same with his Pen.

This comment could very likely apply to most of the poll-books.

21 Though some could conceivably have qualified as freemen through another trade - Richard Frank Ring who voted 1835 and 1852 as a pipemaker was F 1802 as a potter.

22 Saunders and Down appear at 19 Gt Ann St (at number 10 in 1849). Number 19 is Saunders's address: Down(s) votes from Sion Place, St Philip and Jacob Out-parish, a lane later known as The Paddock running from Stapleton Rd to Easton Rd ca.1/4 mile W of St Jude's and only recently closed to allow the site to be developed for industrial purposes (City Engineer and Surveyor's Dept, Bristol, in litt. 23 August 1972). Sion Place appears on Ashmead's 1828 plan.

23 It is not known for certain how out-voters cast their votes. The presumption is it was often done by agents, either the voters' agents or election agents. Otherwise, the voter took his burgess certificate to the sheriff and when he had voted his certificate was punched or franked with a small mark chosen by the sheriff, the mark differing for each election (I am extremely grateful to Bristol Public Libraries for supplying this information). It is possible Samuel sr had recorded his vote before polling began in order to have it sent to Bristol, in which case he could have died a short time before the beginning of April.

24 Curiously, but probably by coincidence, John Tovey appears to be following Carey premises but at about two decades' distance. It is possible he was a minor manufacturer moving into premises abandoned by other, more successful, makers. Thomas Appleford sr (F 1804) also appears in Castle Precincts, at Mary Bush Lane in 1812.

25 This may sound an unusually large number for this date, coming as it does with the final collapse of the Bristol industry; but the information came from the George family at the time their firm closed in 1921. The figure was given as being those employed "some 50 years

ago" (i.e. ca.1871) when the firm moved to its Gt George St premises from Gt Ann St; and the date at least is accurate, suggesting the 50 years was not given as a vague estimate, for the directory entries first record the firm on Gt George St in 1871. In fact, the business is recorded at both premises until 1873, which entries are confirmed by the property deeds for the Gt Ann St premises held by the Bristol Archives Office (ref 13480(26)) which note George sold the premises in 1873. (Previously, however, the expression "50 years ago" used in the account when referring to there having been 14 manufacturers in the area is underestimated, on the basis of directory entries, by ca.15 years.) An MS note dated January 1953 of the last Thomas George (who died in 1968, in his 96th year, unfortunately before the writer could interview him) says the family firm had 32 workers in 1900. In any case, whether the 30 or so employees represented the firm's staff in pre- or post-decline days it seems likely there must have been a hundred or two people employed directly or indirectly in pipemaking in the St Jude's area at the height of the industry in the mid-C19; and this agrees with the anonymous correspondent to the *Examiner* who noted (24 August 1850) "that probably from one to two hundred persons find partial employment in this trade" at that date. This, of course, agrees quite nicely with the total of ca.258 pipemakers given for Bristol as a whole in the 1851 census (above) - this latter total would have included those working for businesses, and presumably living, outside St Jude's; the 1851 trade directory noted 6 such businesses out of the 23 recorded for that year, one of which 6, Ring's, may have been that recorded in the census abstracts as having between 30 and 34 employees (above) and if not would probably have had about that number of pipemaker employees in any event. By contrast, when George's closed in December 1921 they had employed for the preceding two years just three pipemakers (Anonymous 1921a).

26 Figures given here and below for votes cast at the various elections are taken from Beaven's *Bristol Lists:*....(Beaven 1899: 169-72); they differ slightly from a number given by Latimer.

27 Sir William Henry Wills was the son of William Day Wills of W.D. and H.O. Wills. Like most of the Wills family he was involved in social work and liberal politics; prior to standing for Bristol East he had been Liberal member for Coventry 1880-86 (Alford 1973: 279-80).

28 For an example of this, see attempts in Appendix IX to unravel the Robertses pipemakers.

29 With the exception of Lewin's Mead Meeting, the Unitarian chapel opened in 1791 (Latimer 1893: 483), what survives at present of Lewin's Mead dates largely from the second half of the C19 - in 1906 it was noted (Anonymous 1906 ed: 387) that "within the last forty years" the old houses had disappeared and the street was "now double its original width".

30 An interesting sidelight on the cottage industry-master craftsman-family business-factory progression occurs in W.H. Warburton's *The History of Trade Union Organization in the North Staffordshire Potteries* published in 1931 where he suggests that the "industrial revolution" - regarded here as the replacement of manual skills by

machinery (machinery in the sense of apparatus to produce ceramics without the traditional contact between fingers and clay and at such a rapid rate that hardly any workers could produce similar or greater quantities) - began in The Potteries only in the 1870s, the preceding 20 years having seen the introduction of machine-production processes (cited in Celoria 1973: 11). Celoria (op. cit. 11-13) suggests this to be by and large true as a generalization, and that in this regard The Potteries were behind other ceramic-producing areas of Britain such as Scotland at this time, though there were exceptions. In this sense pipemaking can hardly be said to have ever reached the "industrial revolution", for as noted earlier (pp 152-4 above), though there were a number of processes patented from 1848 onwards for mass production of pipes there is little evidence that any of them proved practical (despite Jewitt's claim (1878: I, 298) that Edwin Southorn of Broseley had introduced steam-power in 1868 to produce 1,500,000 pipes a year), and the industry right to its effective end in the later C19 and early C20 - and even largely today, though recently-perfected machinery is being used to produce cheap varieties of pipes in The Netherlands, Belgium, and the Westerwald in Germany (see 2: 11-1V above) - remained one where manual dexterity continued paramount in the trade.

31 When Philip Guy was apprenticed 20 April 1812 to William Okely the scribe started writing "Oak-", then put a line through it and continued with the spelling Okeley. Perhaps William was watching his name being written and corrected it! As noted in Section VII(a)(2) below, a pipestem-fragment at Stroud Museum which should date to the early C19 and thus belong to either Martha or William Okely has enough of the maker's name left to show the spelling of the name there must have been Oakly; C18 references consistently prefer Okely and in the C19 poll-books the name is recorded twice as Okely and once as Okeley, but trade directory entries frequently use the spellings Okeley or Oakley in the C19. In the C18 Pipemakers' Guild Book described in the Preface and latterly used by pipemaker Joseph Edwards jr (F 1774, fl 1823) as a general ledger, scrap-book, and notebook there is a reference dated 1805 to an account with a Mr Matthew Okeley, who may or may not have been related to the pipemaking family, reinforcing the impression that the spelling Okeley was the most common by the C19.

32 According to Pountney (1920: 268), who appears to have been unaware of the family's Canadian ties, the Whites had been pipemakers for "many generations" at Rich's Buildings, Redcross St; but none are recorded there in the directories before 1829. A Joseph White appears as a pipemaker on New St, St Jude's, 1813-17 (see below); but the only earlier White pipemaker in Bristol sources is John son of a Somerset cordwainer, A 1733 and F 1734 in which year he voted in St James parish.

33 "Egyptian black" refers to a dry-bodied stoneware most commonly known as black basaltes after the name applied to it by its most prominent maker in the C18, Josiah Wedgwood. Its continued popularity was in part due to it becoming fashionable to use in times of mourning, because of its colour. "Blackware" can refer to either Egyptian black or to earthenwares covered with a glossy black glaze (cf Pountney 1920:

268). "Rockingham" refers to a manganese-brown glaze very popular on Victorian teapots and other wares; it originated at the beginning of the C19. "Staffordshire warehouse" presumably indicates the firm had a wholesale and retail business in the mass-produced refined hard-paste earthenwares made in Staffordshire last century and exported in vast quantity - the "china" of the Victorian period.

34 Saunders himself, however, may have died sometime after 1841, the business continuing to include his name (see Appendix IX).

35 The reference to the Pierce company's works being in Kirk St is curious, for the trade directories do not list the firm there at any time (during the period 1884-85 referred to above, their works is recorded at Knowsley St, Cheetham). From 1897 the firm of Pollock (first recorded in the directories in 1886 but according to Gordon Pollock, the present owner of the firm and the third generation of the family in the business (in litt. 11 January 1966), founded in 1879) appears in the directories at Kirk St, Every St, Ancoats; and this firm, still in business today (see 2: VII), still calls its factory the Kirk Factory, though in 1957 Kirk St was renamed Harding St (Manchester Public Libraries in litt. 26 July 1974) - at which time the factory name was changed from the Kirk St Factory to the Kirk Factory - and in 1974 the firm moved to nearby Stott St; but Mr Pollock and his mother are both quite certain there was never any connection between the Pollock firm and the Pierce business (G. Pollock in litt. 9 August 1974): indeed, Mr Pollock's grandfather Edward Pollock had the Kirk St Factory built as a new structure. Mr Pollock notes that a map of Manchester bought by him in 1931 shows two Kirk Sts and there is thus a possibility the Pierce firm had a factory on the other Kirk St; on the other hand, if Pierce's had a factory on Pollock's Kirk St in 1884-85, then Edward Pollock, building on Kirk St a dozen years later, could have done so elsewhere on the same street or could have bought the Pierce factory, razed it, and built his own new factory on the site.

36 Agitation against shop-signs in the City of London started after four people had been killed in 1718 when a shop front collapsed under the weight of its sign. The suggestion of numbering was taken up, but it remained virtually unused until the City in 1762 and Westminster in 1763 banned shop-signs hung over the street (Heal 1947: 2-4; Mitchell and Leys 1958: 216-7, 1963 ed). In 1766 Bristol obtained an Act of Parliament requiring signs to be moved and placed flat on building walls (Marcy 1969: 151); Sketchley was thus being quite up-to-date. Simeon Shaw, writing of The Potteries in 1829, noted that

> Many of the new streets are distinguished by the Name on the corners; but few of them have the Doors of the Houses numbered. This might be done on a very useful, simple, and convenient plan - all the even Numbers might be on one side, and all the odd ones on the other; a person would then be certain on whether side was situated the house he was seeking (S. Shaw 1829: 13, 1970 ed).

Like Sketchley, Shaw appears to have been before his time.

37 Matthews's directories give the number only from 1882, but Scammell's

Gloucester, Bristol and South Wales Directory of 1853 and Hunt's Bristol and Welch Towns Directory of 1848 both list John Williams (see below) at number 14.

38 But no Bristol maker appears to have had the flair for advertising demonstrated by Ebenezer Church, who worked at North St, Pentonville, London, from 1865 to 1886 (see 4: VI above). In one advertisement Church described himself as a "Designer in Tobacco Pipes" and noted that "A Specimen Sheet of Patterns may be seen on the Platforms (either side) of all Metropolitan Railway Stations, from Portland Road to Aldgate". Among his creations were "the celebrated University Pipes, the British, Foreign and Colonial Rats, the unique Palestine Clays, the Lowing Ox, the Danube Bramble, the Turko-Russo, Duchess of Middlesex, &c": as noted on p. 157 above, Church had successfully charged another pipemaker in 1877 (the year before this advertisement was printed) with copying his "Danube Bramble" registered in 1876, and this too made good copy for the same advertisement, it being noted that "The excellence of our goods has induced some unscrupulous tradesmen to imitate our patterns - vide 'The Times,' October 5th, 1877, for the report of a case where a person was fined £5 and £2 4s costs for fraudulently imitating one of our registered designs". There then follows some words of warning about using tobaccos with additives; and finally, as a piece de resistance, an account in the Daily News of 12 September 1877 of an inquest into a child who had died of nicotine poisoning from a foul wooden pipe which he had been using to blow bubbles after breaking a clay pipe is reprinted as part of a scientific-sounding homily as to the dangers of smoking a wooden pipe. Church's 1879 price-list also has some smooth lines. Among his classes of pipes were "Fancy Clays", which were actually of average price, and "Superior Clay Bowls (moveable stems)", which included the majority of his most expensive types; but pride of place was given to what he called his "Spécialité Clays", thus adding that soupçon of je ne sais quoi which foreign phrases always seem to impart and perhaps implying an aura of Gambier and Fiolet quality from France (see 3: V above). Remittances were to be made to Church at his "Head Office, London", a title tending to obscure the fact there was only one office; while the business, elsewhere called the Pentonville Tobacco Pipe Works or Pentonville Pipe Works, appears somewhat self-consciously as "Ye Pentonville Workes", an orthography perhaps designed to laud the clay pipe as olde English at a time when it was dying in the face of the recently-introduced foreign brier pipe and cigarette. Church, one feels, was a born businessman.

39 The poor-rate entries indicate that J. [sic] Carey in fact occupied 15 Castle Green from March 1782; Carey had probably continued at 38 Lewin's Mead until that time, for he is listed voting in St James parish, where Lewin's Mead lies, in 1781 (see Israel Carey II entry in Appendix IX). A heap of clay pipe wasters found in 1971 at the corner of Broad Weir and Lower Castle St, adjacent to Castle Green (see FIG 214), has been associated with Israel Carey by R.G. Jackson and dated by him to ca.1782-92 (R.G. Jackson 1972), though as indicated above Israel Carey was apparently dead by 1791, when his son John is listed

at Castle Green. Identical pipes have recently (1973) been found in a kiln tip at Whitefriars, a lane off Lewin's Mead (R. Price in litt. 18 January 1974), which must represent Israel Carey's business in Lewin's Mead prior to his move to Castle Green.

40 Until 1769 the Temple St fair began 25 January and the St James's Churchyard fair 25 July; subsequently they began 1 March and 1 September respectively.

41 As noted on p.159 above, an unusual instance of how pipes might get carried over a considerable distance is recorded by George Ewart Evans. Discussing the annual migration of East Anglian farm labourers to work in the maltings at Burton upon Trent in the later C19 and earlier C20, Evans notes (1970: 264) one of his informants recalling that the pubs at Burton gave out free clay pipes with their names on them and that the first season he was there (in 1901) he brought back to Suffolk 90 of these pipes.

42 Atkinson (1968a: 11) notes a shipment of pipes and pipeclay in 1666 from Cowes on the Isle of Wight to "Brightston" which he identifies, no doubt correctly, as Brighthelmston (modern Brighton). Salzman (1968) suggests it can be identified with Bristol, but despite the rather surprising references above to pipes being shipped to Bristol from Caerleon and Barnstaple, Atkinson is surely right (1969a: 104-5) in finding it difficult to believe that pipes from as far away as Cowes would have been shipped to Bristol. The pipeclay, of course, might have been worth shipping that far, though the North Devon and Poole clays were nearer and probably better; it is possible in any case, even though the ship was a "Brightston" vessel and cleared for "Brightston", that the pipes were destined for some port en route to "Brightston".

43 J.K. Knight (1970: 410-1) suggests this material - from the St Nicholas's Almshouses excavations - is Bristol made, and draws a parallel with an atypical sherd from Jamestown in a pre-1640 context, but if so, this spread of manufacture only emphasizes the fact that the North Devon sgraffito-ware industry was already active by this time. Knight also (Radcliffe and Knight 1974: 94) notes North Devon sgrafitto-ware was being copied in South Wales, material from Abergavenny almost certainly coming from Gwehelog near Usk.

44 The coastal shipping trade is reflected in a number of pipe finds. A pipe made by Robert Pottle of Fareham, Hampshire, fl 1711, has been found at Newhaven in Sussex (Atkinson 1966: 274, fig 7), ca.55 miles east; products of John Edmonds, a mid-C18 maker probably working in Portsmouth (see p. 615 below) occur as far east as Arundel (Atkinson 1966: 273, 274 fig 3), ca.22 miles away, and as far west as Plymouth (Oswald 1970a: 132, 133 fig 55,32), ca.140 miles away; pipes marked Hoar of Devonport - there were three makers of this name in Plymouth in the 1820s-1850s (Oswald 1970a: 140) - have been noted at Truro in Cornwall (County Museum and Art Gallery), ca.40 miles west, from Launceston Castle, St Austell, also in Cornwall (Oswald 1970a: 132), ca.30 miles west, and probably from Totnes (stem fragment in A.S. Brook Collection there similar to the other examples, DEVONPORT on the only side visible in the case), and from Southampton (in museum collections), ca.125 miles east. A decorated bowl of unknown maker and

origin, but with a distinctive if vaguely-moulded motif of a bottle- or carafe-like object surrounded by a wreath on the right side, has been noted at Totnes (A.S. Brook Collection) and Brixham (Brixham Museum) in Devon and at Southampton (museum collections). Much farther-flung coastal trade is evidenced by Liverpool and Sunderland pipes - together with French and Dutch - from Newhaven (Atkinson 1966: 274).

45 The place given is presumably that where the father was working at the time of the son's apprenticeship, which in the majority of cases would probably have been the father's place of birth or at least the place where he had spent most of his adult life; where the father was dead, the place given was probably the place where the father had worked. That this was not invariably the place of the son's birth is indicated by the case of George Viner A 1740 F 1747, who was born at Painswick in south Gloucestershire in 1723/4 even though both his father and paternal grandfather are recorded as joiners "of Bristol" (the Viner family, however, were native to the Stroud-Pitchcombe-Painswick area of south Gloucestershire) (G. Viner *in litt.* 8 and 28 August).

46 A study of immigrant insured labour in Bristol for the period 1900-28 showed that 34.5% came from Gloucestershire, Somerset, and Wiltshire; 23.7% from Glamorgan and Monmouthshire; and 8.4% from the South-West excluding the three counties noted in the first figure (Shannon and Grebnik 1943: 31-2). Thus two-thirds of the immigrant insured labour for this period was still coming from what can be considered the traditional Bristol hinterland.

47 Though this name is also listed among those traditionally introduced by the German and Dutch families brought over at the beginning of the C18 as skilled labour for the Bristol Brass Wire Company first at Baptist Mills in 1702 and then at Keynsham in 1706 (Hamilton 1926: 109 n.2, 1967 ed; repeated in Buchanan and Cossons 1969: 117).

48 Recent and as-yet unpublished finds of Ham Green ware from Salisbury and Southampton somewhat modify the picture given of Ham Green ware hardly penetrating as far east as Wiltshire; Salisbury is on the obvious Bristol-Southampton trade route. Finds of Ham Green ware from Cork, however, also unpublished, further emphasize the Bristol-Ireland connections of the period (*ex info.* K.J. Barton during visit to Ottawa September 1972).

49 In terms of the new counties and county boundaries for England and Wales which came into effect on 1 April 1974, the area covered was as follows:

Cornwall
Devon
Dorset
Somerset
Wiltshire
Avon
Gloucestershire
Warwickshire
part of West Midlands
Hereford and Worcester
southern Powys
Gwent
South Glamorgan
Mid Glamorgan
West Glamorgan
southern Dyfed

50 Minimal views appear to be fashionable among archaeologists at present, at least among prehistorians. Independently of this writer's use of the term there have appeared recently "The Wessex Culture: A Minimal

View" (Coles and Taylor 1971) and "The Larnian Culture: A Minimal View" (G.F. Mitchell 1971).

51 The material in the Somerset County Museum at Taunton labelled as coming from "Downside" probably comes from immediately north of Shepton Mallet, where Downside Abbey, a monastery and public school, is situated (P.A. Langmaid, Assistant Keeper, Somerset County Museum, in litt.). According to D.R. Atkinson (in litt.), the Downside material at Taunton probably all comes from the Abbey site about the time of its redevelopment ca.1896, being collected by a monk there with antiquarian interests.

52 However, the example illustrated in Atkinson is, from the bowl form, definitely later than the mid-century bowls attributable to John Hunt I and could be an early product of one of the two Bristol John Hunts (noted in the next paragraph both sons of Flower Hunt and free 1689 and 1694.

53 The name Hunt in these marks frequently appears with the N and T dipthonged so that the bar on the second vertical of the N could have been overlooked by Hughes; the initial H could also have been misread as a B.

54 The Howells, like the Hunts, are a pipemaking family in the middle and second half of the C17 and into the C18, products of various members of which are widespread in the West Country and beyond - John's pipes are in collections in London, Leicester, and Belfast - but whose identification and place(s) of work remain unknown. In addition to John and Nathaniel, a George and a Richard are known from pipes; a Giles Howell was apprenticed at Road in north Somerset in 1723 (Oswald 1960a: 74). Stems from Bath with NATH/HOW/ELL on them in typical Wiltshire-Hampshire fashion (cf Jeffry Hunt stem noted above from nr Salisbury, see also p. 614 below) (Brown and Snedden 1973: 295) suggest either that Nathaniel Howell was active for some 50 years or else that there was a second, later, maker of that name. A journeyman of this name appears among the signatories of the ca.1696 oath of allegiance to William of Orange presented by the London pipemakers' guild (R.H. Cooper in litt. 19 December 1972). T.G.H. Price (1901: 345), presumably quoting Pritchard's correspondence with him, says Nathaniel took his freedom in Bristol in 1651, but this is not so; Pritchard in 1923 does not actually say either John or Nathaniel were Bristolians, and neither appears in the Bristol freedom rolls.

55 There is also in Gloucester museum a Philip Edwards pipe from "Jacob St, Old Market, Bristol".

56 See footnote on Downside above.

57 Another Richard Nunney pipe at Taunton is labelled as coming from Bristol.

58 Continuing excavation at the Buck site, Maryland, has produced a pipe with a bowl approximately comparable to the James Fox and William Evanses types in figs a and c-d respectively and the mark A·A on the stem top with an X· certainly on the right side of the two As. This corresponds to no known Bristol mark, though the bowl could typologically possibly be a very early product of Anthony Andrews of London, fl 1693-1716, or Arthur Andrews also of London if he were

working appreciably earlier than his sole recorded date of 1716, the only two English makers with these initials recorded by Oswald whose dates might at all agree both with the bowl shape or with the date of the other pipe material from the site (Oswald 1960a: 55). However, the Buck site has produced an appreciable amount of LE- and WE-marked material much more in keeping both with a Bristol origin and a dating somewhere between 1660 and 1680 (Alexander *in litt.* 17 December 1972 and 14 January 1973).

59 In fact, the Pipemakers' Guild Book has a heading "Mr Isasc Evans Master" between an apprenticeship entry dated February 1709/10 and one dated January 1710/1 - apparently associated with the latter entry rather than the former - which on the evidence of the apprenticeship entries and from similar references elsewhere in the book to a "Master" must indicate Isaac Evans was Master of the Guild at this time (he is certainly not the master of either of the apprentices in the entries, for example). Evans died a year or two later, however, for his will was proved in April 1713 (R. Jackson 1973: 206).

60 Though it is not unique to Bristol, being used for example among Nottingham makers from the mid-C17 certainly into the C18 and possibly into the C19 (Alvey 1972: 30 fig 10 *passim*; 1973: 36 fig 1 *passim* and 39 fig 2,14; 1974: 70 fig 11 *passim*).

61 A typical earlier-C18 West Country type 9 bowl from Port Royal, Jamaica (Oswald 1968: 81 no 194), has a cartouche on its right side reading I/MIH/VRS. No Bristol-West Country maker is known with a name resembling this, and Oswald is possibly correct in identifying the maker as John Myers of Chester F 1722 (cf p.332 above). G.C. Spence (1942: 50) notes a pipe at Chester with ED/WARD/EVANS - the S retrograde - in a circle on the bowl and dates it to ca.1646, but Oswald (1959c: 205 fig 4(21)) illustrates a Chester Edward Evans bowl, certainly of about the same date, with the same mark but represented as a heel mark (Spence unfortunately does not illustrate his example).

62 After writing this exhausting analysis of the problem of alleged Dutch origins for the Oswald type 9 pipe it is somewhat of an anti-climax to read Atkinson saying quite categorically (1972d: 177 n.2) that

> The suggestion that has been made in the past that at the end of the seventeenth century English pipes began to copy Dutch styles due to the influence one way or the other of William III is pure fallacy. No greater difference in styles can be imagined in commonplace objects which served the same purpose than Dutch and English clay pipes of the eighteenth century.

63 The label with this Edgehill pipe says the decoration is Broseley in style; a *grooved* spiralling on the stem of long Broseleys at the point where the fingers would normally hold the stem is known.

64 But see now *Arch. Rev.* 6 (1971) 47 s.v. Bristol - Temple Back.

65 As discussed in Appendix IX, a bowl of typical Bristol earlier-C18 form with a cartouche reading E PEARCE seems to be attributable only to Edward Pearce F 1766 fl 1781 or to Eli Pearce fl 1775 (there is, as discussed there, a possibility that Edward and Eli Pearce are in fact the same person). Unless he (or they) were in business decades before

their earliest at present known dates it is difficult to explain their using a mould producing bowls so much earlier; however, as noted in 6: IV, the law requiring freedom to be taken before setting up in a trade was dying in the C18 and there are cases of pipemakers (whether previously in business, however, is not known) not taking their freedom for 20 or more years after commencing an apprenticeship. Eli Pearce became free 1766 on the grounds he had married the daughter of a pipemaker, either John Bonner 1 (F 1712) or John Bonner 11 (F 1754, fl 1784), so that conceivably he could have worked for a considerable time prior to 1766 and even as early as the first third of the C18.

66 There is a possibility, too, that Kingston upon Hull pipes may have reached Virginia in the C18. Sheppard (1902: 17-18, 1912 ed) notes Hull trade in tobacco with Virginia at this time, which also saw the height of the Hull pipe industry.

67 The Kilkenny and South-East Ireland Archaeological Society evolved into the Royal Society of Antiquaries of Ireland; their museum material is placed on loan with the Royal Irish Academy collection in the National Museum of Ireland in Dublin (Royal Society of Antiquaries of Ireland in litt. 1 December 1971).

68 The descriptions in Cotter 1958 of pipes from Jamestown, founded 1607, are only rarely detailed enough for definite identification, while pipes from the excavations at Plimoth Plantation, Plymouth, in Massachusetts, founded in 1620, have not so far been published in any form. Until the pipes from these two sites have been presented in detail we are denied information from the two earliest permanent English settlements in North America, and thus an adequate knowledge of the earliest sources of these pipes, which may quite possibly have included Bristol. It is much to be hoped that Jamestown pipes will be adequately published, for until they are many of the attributions of Bristol pipes from that site made in the following pages cannot be regarded as absolutely certain.

69 For a discussion of these uncertainly-ascribed pipes - apparently marked IE - see Appendix IX under entry for Isaac Evans.

70 The mark attributable to Thomas Monkes is a T surmounting and joining an M and generally, but apparently (T.G.H. Price 1901: 348 fig 15) not always, with a simple scroll motif above the T, as at Green Spring Plantation. A very similar mark but reading IM occurs on a pipe from an Onondaga Indian site referred to in 1677 and nr Watervale, SE of Syracuse, New York state (Beauchamp 1898: 115-6, fig 139 and Parker 1920: 642; Omwake 1957b: 12), but while the bowl shape might have been made by Monkes the illustration shows a stub-stemmed pipe with the stub-end collar ornately decorated, which seems hardly conceivable for a product of Monkes or of anyone else of this period, though there is an inevitable tendency to think of a Dutch origin for any unusually elaborate pipe forms this early. Neither the illustration nor the verbal description suggests this stub stem and collar to be a subsequent modification to fit a makeshift stem to the bowl, something which was sometimes done, although usually by paring down the broken stem-end to fit a wooden, reed, or other stem. However, a typical Bristol type 9 export-style product of Isasc Evans at Gloucester

Museum, the bowl heavily marked with the saw-blade decoration normally associated with rim decoration, has a rather similar "collar" on the stem near the bowl. The rest of the stem is broken off here, but appears to have been a normal one.

The same IM mark occurs on a pipe from Portland Point, New Brunswick (Omwake 1957b: 11-13 and photograph supplied by the New Brunswick Museum; also Barka 1965: 430, pl 155 top right) which seems to have had an orthodox stem but has a bowl shape suggesting the pipe may be Dutch. No mark of this design is illustrated by Helbers and Goedewaagen (1942) under either IM or TM, but as IM the mark occurs on one of Düco's C17 Dutch pipes which is identified by him as made in Amsterdam, probably by Jan Muur, between 1640 and 1660 (Düco 1974: 1st page and fig 9), and the mark is listed among those occurring on Dutch pipes found in England, in this case on a pipe dated by Friederich's system to ca.1630 (Atkinson 1972d: 182 fig 81,10).

71 The 1696 assessment actually lists a John Tippet, widower, with the Robert Tippet household, and neither apprentice is in fact called such, one, John Quinton or Quinten, being listed as a servant; but John Tippet is almost certainly a mistake for J(o)ane and both Quinton and the other member of the Tippet household mentioned, Henry Hoar, took their freedom as pipemakers in 1699. Quinton is noted in the freedom rolls as having been apprenticed to J(o)anne Tippet - his apprenticeship date has not been found - while Hoar, whose surname appears in some extraordinary variants, is probably the Henry Rear apprenticed to Robert and Sarah Tippet - he is noted, when becoming free, as having been an apprentice of Robert Tippet II.

72 An example of the need to illustrate or describe clearly the mark on a pipe is the instance of a mark which occurs on both sides of the bowl in the form of the letters RT inside a heart-shaped beaded-line outline with a decorative motif below the letters and a star above the heart and on either side of its foot. This occurs on at least two pipes from Fort Michilimackinac (Omwake 1962: 11-12, illus. fig H; Petersen 1963a: 5 lower rt; 1963b: figs 12 and 14, p.6). From the absence of this mark in the Bristol collections it seems certain this is not a Robert Tippet product, nor that of any other Bristol maker, despite the positioning of the mark - on the bowl sides - being very typically Bristolian [but see now Jackson and Price monograph noted in Preface, their p.117]. Lenik (1974a: 16) refers to a pipe "marked 'RT' on the bowl" from the Charlotteburg Middle Forge at West Milford in northern New Jersey but gives no further description: in fact, the pipe is exactly the same as the Fort Michilimackinac examples (Lenik *in litt.* 13 December 1974) and thus not a Robert Tippet product [see now above]. The Charlotteburg Middle Forge, incidentally, was in operation 1765-ca.1780, which gives a useful indication of date for the pipe (Fort Michilimackinac was occupied ca.1715-1781).

73 Taking the "front" of a pipe to be that part facing the smoker, though the writer realizes he appears to be contra mundum here, most people apparently feeling the side away from the smoker is the front.

74 According to Marochan (Marochan and Reed n.d.; Marochan *in litt*. Omwake-Marochan correspondence, copies in writer's files -

the pipes have not been seen by the writer) pipes marked I/TIP/PET in a cartouche on the side and others similarly marked IT or with IT impressed facing the smoker were found at the Robert Tippet family Whitson St kiln-site in Bristol. Robert Tippet pipes associated with the site date typologically to ca.1680-1760, suggesting the site was used over a considerable period. Marochan suggests J(o)ane Tippet produced the I/TIP/PET and IT pipes, but while one of the latter, with the letters in a cartouche, is typologically datable to ca.1690 (though earlier in form than the J(o)ane Tippet pipes identified above in North America), one with IT impressed facing the smoker and the I/TIP/PET example illustrated are typologically much later - mid-C18. Two John Tippet(t)s are recorded apprenticed as pipemakers, John I A 1691 and John II A 1723: nothing more is known of the former, but John II became free 1734 and was still alive 1754 though dead by 1766. Robert Tippet II does appear to have had two sons John, one baptised 22 March 1696/7 the other baptised 24 August 1702, but neither of the above John Tippets were direct relatives of the Robert Tippets, John I being the son of a Bristol mariner Joseph Tippet and John II being the son of a Barton Regis (then a Gloucestershire, now eastern suburban Bristol) coal-driver Richard Tippet, and neither were apprenticed to either the Robert or William Tippet pipemaking families (William I and Robert II were brothers) which one might have expected had either been a relative. With the exception of the Clay Bank pipe (above) which appears to have had the R of IR/TIP/PET deliberately removed after moulding, this writer has seen no I/TIP/PET pipes either in the Bristol collections or from New World sites.

75 For a discussion of the problems of identifying some of the possible Isaac Evans products see Appendix IX under this maker's entry.

76 For finds from other sites of pipes some of which may also be products of Edward Reed see discussion below under the Edward Randalls.

77 A fleur-de-lis-marked bowl is recorded along with three probable Robert Berryman of Bristol bowls and one definite Philip Edwards of Bristol bowl from a site at East Boothbay, Maine (Nickel 1966: 14). The fleur-de-lis as a Dutch maker's mark is first registered at Gouda in 1667 (Helbers and Goedewaagen 1942: 226, 229 no 250), and various C17 pipes with it as a heel-mark are illustrated by Düco (1974: figs 9, 13B, 39), though as noted earlier (p.347 above) the use of the fleur-de-lis as a stem-mark goes back to ca.1630.

78 South (1971: 42) gives several references to EB pipes from New York and Pennsylvania citing (his footnotes 19-20) information available to him from Barber 1880a and 1882b, but in fact South's source (see square-bracketed note after South's footnote 22) appears to have confused both page numbers and what Barber actually said; Barber does note EB pipes from Long Island, New York, and Lancaster County, Pennsylvania, in 1882b: 201.

79 The port books examined by Jackson and Price covered the period 1773-1818, excluding the years 1781-89. The port books prior to 1773 are not held in Bristol, nor are those for 1781-89. As noted above, no pipes were shipped to the American colonies between 1775 and 1779: 78 boxes are recorded shipped in 1780, but with the books for 1781-89 not

studied, figures for the remaining years of the Revolutionary War, which ended with the Treaty of Versailles in 1783, are not available; the existing evidence, however, is sufficient to show how disruptive the American Revolution was to the Bristol industry.

80 MacInnes (1939: 279) refers to this, but misinterprets it to imply annual Bristol exports of pipes at this time totalled ca.600 boxes - "Bristol pipe-manufacturers annually exported 600 boxes of pipes to the colonies..." - but Latimer clearly says the 500-600 boxes annually was a figure for individual makers. Unfortunately Latimer does not state his source, nor does he say how many pipemakers actually were shipping out amounts of that size.

81 Forma (1972: 43, 49, fig 31,1 and pl 2,6) tentatively identifies a Ring pipe among the material attributable to the Hudson's Bay Company occupation at the Michipicoten Trading Post site (see above); but the form of lettering, the style of decoration, and the way the inscription on one side would have to read - hypothetically BR[ISTOL RING] - all differ from the appearance of any known Ring pipes. The general style of the fragment in fact strongly suggests something very similar to the A. Sparnaaij (variously spelt) Gouda-made stems from the same site (Forma 1972: 43, 50, fig 30,3 and pl 2,8) which are known from another northern Ontario site, the Longlac Trading Post (Dawson 1969: 46, 27 pl 7,7), as well as from an excavation in Brooklyn, New York (Salwen 1974: 31 fig 4,e, 35, but with wrong dating) and - with the initial E - from an unknown site the material from which is now in the Wyoming State Archives and Historical Department at Cheyenne (in litt. 13 June 1968). Numerous makers called Sparnaaij or a variant spelling - e.g. Spernay - are listed last century in Gouda (Laansma 1960: passim). The Sparnaaij fragments in turn appear to be one of a number of Gouda and other imitations of Peter Dorni pipes made in north France with this decoration (see p.296 above).

82 Thomas John Corcoran, last recorded as a pipemaker in Bristol in 1904, emigrated to North America, but where to and whether he continued as a pipemaker is unknown.

83 A possible Herefordshire or Herefordshire-style pipe has recently been recorded from the Hallowes site in Westmoreland County, Virginia, together with products of several Bristol pipemakers (Buchanan and Heite 1972: 44 fig 4,H; see 6: VII(b)(4) for the Bristol material). The find was of a bowl-fragment with the mark of a rose facing the smoker; such a mark could also be Dutch, but it is impossible to be certain of identification from the drawing. Other artefact material from the site suggests a second-half-of-the-C17 context, which would agree with the dating noted above for the growth of the Herefordshire pipe industry (see now I. Walker 1974b).

84 In their study of C19 Bath pipemakers, Brown and Brown (1974: 27) note that the earliest member there of the Sants family (eventually to be the last Bath pipemaking family, closing in 1919), a Joseph Sants first recorded in 1837 and working until 1871, was a native of Gloucester who was aged 40 in 1851 and thus born in 1810 or 1811. As no study has yet been made of the Gloucester pipemaking industry (cf I. Walker 1974: 143) no information on the Sants family there is available, but it is

possible that the first line of the above stem-mark is in fact some variant spelling of Sants. If so, it would give the family a long tradition in the pipemaking business, for the stem is certainly C18 and possibly first half of the C18 and the family was presumably making pipes at Broseley before settling in Gloucester.

85 A James Mathews, pipemaker, is known in Bristol. He became free 1723 and voted in Bristol in 1734 and 1739. He was, however, apparently a native Bristolian, for when he was apprenticed in 1713/4 it was noted he was the son of George "Matthew", a victualler of Bristol. Two of his daughters married John Andrews and Samuel Pearce sr who became Bristol pipemaker burgesses by their marriages.

86 In fact Ebbery's apprenticeship is recorded in the Bristol Pipemakers' Guild Book - he was apprenticed on 24 September 1712 - and his father was indeed a Bristolian, George Ebbery, a clothier.

87 Dates for the Smitheman business are at present vague, but "Messrs. A. Smitheman & Co., of the Crown Pipe Works" are noted in 1908 (Randall 1908: 442), and the present derelict Southorn factory at Broseley was said by the present Mr Southorn to have been taken over from Smitheman's in the 1920s. A pipe at Tenby in an immitation brier form (and therefore datable to the second half of last century or later) is marked R. Smitheman in a Southorn-like stamp and a fragment at Stroud has a similar mark T. Smitheman, suggesting several generations, or several members, of the family were in business.

88 In a recopying of this information Mr George added

The List of ships going to the West Coast
of Africa were

[illegible word - Messrs?] Richard & William King,	21
[ditto] Lucas	19
[ditto] Rider Son & Andrews	8
	48

Presumably these were traders or ship-owners; they have not yet been identified. What Mr George's source of information was is unknown - a ledger-book or diary seems more likely than oral tradition for the names and figures.

89 When the bridge, a single arch of stone (Matthews 1794: 37), was rebuilt in 1798 it was announced it would be called henceforth Frome Bridge. By the mid-C19 the name Traitor's Bridge was still remembered but was now identified with the similar-sounding Quaker's Bridge (Latimer 1893: 526), a footbridge across the Frome at the former Friends' Workhouse which appears to be the one indicated by Millerd ca.1710 (FIG 173) and is still named Quakers' Bridge on the 1883 OS plan (FIG 174). By 1903 (FIG 175) it had disappeared with the covering over this part of the Frome. FIGS 183 and 184, two O'Neill pen and ink and watercolour drawings both dated 1821, show these two bridges, though unfortunately their Braikenridge catalogue entries confuse their identification. FIG 183 (Braikenridge catalogue M 2908) is described as "Traitors Bridge at the end of the Rope Walk rebuilt with improvements 1798", which would seem to identify it beyond reasonable doubt as Traitor's, later Frome, Bridge. FIG 184 (Braikenridge catalogue M 2909), however, is entitled "Frome Bridge the first Bridge

above Traitors Bridge at Earls Mead". In the first place, Frome and Traitor's Bridges, as already indicated, are the same; and secondly, there were at this time no bridges over the Frome above Traitor's or Frome Bridge until Baptist Mills: the entry could have been meant to read "Frome Bridge the first bridge above Quaker's Bridge at Earls Mead", but this would then mean both pictures were of the same bridge (i.e. Traitor's or Frome Bridge) which they manifestly are not. Assuming FIG 183 is indeed Traitor's or Frome Bridge, the best identification of FIG 184 would be that it is Quaker's Bridge and that the entry should read "Quaker's Bridge the first bridge below Traitors Bridge at Earls Mead", which would be geographically accurate. Further, the bridge in FIG 184 looks as though it might be a footbridge, which Quaker's Bridge certainly was. However, as discussed later (pp722-3), a careful comparison of the two pictures with Ashmead's detailed plan of only seven years later (FIG 168) suggests that in fact FIG 184 is Frome or Traitor's Bridge (i.e. the bridge linking Wade and Houlton Sts) and that FIG 183 is Quaker's Bridge. The catalogue entries may of course have been written long after 1821 and bear no relation to any original caption the pictures may have had: the entry for FIG 184 would still be correct if Quaker's Bridge had already become known as Traitor's Bridge by 1821 or at any rate by the time the picture was identified for its catalogue entry.

90 I am very grateful to Bristol Post Office who went to consideable trouble contacting the City Engineer's Department (responsible for naming thoroughfares), examining voter's lists, and even consulting older past residents of the area, to check whether this cul-de-sac had ever had a name. No evidence for any came to light; it appears always to have been considered part of Eugene St, and the property illustrated in FIG 186 is known, as indicated in FIG 178, as la Eugene St (Head Post Office, Bristol, *in litt.* 8 August 1972).

91 Marcy (1969: 153-4) notes the Lawford's Gate area and the Rope Walk (presumably the area just across the Frome from New and River Sts) were particularly bad in the mid-C18 for robberies of pedestrians.

92 As in those areas described by Dyos and Reeder (1973: 360) where pressure of expansion caused ripples of obsolescence to overtake "places once dancing with buttercups and [leave] them stale as cabbage stalks".

93 An observer in 1883 (Anonymous 1884: 26-7) noted among the typically decaying older buildings made into tenements in St Jude's, sometimes with additional rooms divided off to provide an extra rent, a chapel, one of its rooms thus partitioned off presenting a "wretched picture of squalor and gloom". This may possibly have been the former Gt George St chapel, but the observer does not give its location. The BCM do not appear to have retained the Gt George St chapel; an examination of their minute-books and of the chapel property-deeds if surviving would probably settle the matter.)

94 A son and a grandson of John Cozens have been Lord Mayors of Bristol.

95 J.M. Hall (1972: 13 n.4) rightly notes that public-house names, like street names, are "diagnostic fossils for future urban planners", and urges their retention (cf Storey's observation (1969: 157-8) that the

name of a road may be the only reminder of even a modern industry, Mollison Lane and De Havilland Rd at Hendon being the only reminders of the site of the de Havilland aircraft works and airfield at Hendon 1920-30). Possibly the "Pigeon" noted above in 1775 indicates the essentially working-class pastime of pigeon-fancying was popular in St Jude's 200 years ago.

96 That the Marquis of Granby was a popular figure is also suggested by his being modelled on tobacco-stoppers, the implement formerly used (and in a strictly utilitarian form to a limited extent reappearing) to tamp down the tobacco in the pipe bowl (quoted in Fairholt 1859: 233 and repeated via Fairholt in A. and C. Scott 1966: 54).

97 George Ewart Evans discusses in some detail the role of inns and pubs in rural East Anglia and the essentially non-industrial towns there prior to WW 1 (G.E. Evans 1975: chapt 7 and passim) and makes many of the points noted here.

98 Evidently a widespread tradition, for it is recorded that saloons in the South of Market slum area near the San Francisco waterfront sometimes acted as informal employment agencies in the early C20 (Averbach 1973: 204).

99 The anonymous correspondent to the Examiner, 24 August 1850, noted "two or three rows of old and discoloured tiles which frequently appear, in the ancient fashion, above a projecting lower window" on buildings in the area of St Philip and Jacob Out-parish outside Lawford's Gate, but no examples of this have been seen by this writer.

100 Another working-class and industrial corner of Bristol which should be examined by social historians and industrial archaeologists before the beautifully ugly brightly-coloured brick workers' rows are entirely demolished.

101 Joseph Ring I, John's father, had married into the Frank family, potters in Bristol since the end of the C17, and taken over their business.

102 Thomas George, James George, and David George. Thomas is Thomas George I (B ca.1765, F 1812, fl 1812-37 [sic], D 1835); James is his son (B ca.1787, fl 1821-58, D 1873) - for more details see below. David (fl 1829-36) has not been traced among documentary and personal material on the George family examined by this writer. Logically he could be a brother of James, but present evidence implies James was an only son; James had 13 children but none was called David and in any case his family was born over the period ca.1810-1832, which would be too late for a pipemaker starting in business in 1829. His being recorded working outside St Jude's, though admittedly not far distant, in St Philip's Plain (modern Narrow Plain-Broad Plain), could indicate he was not a relative of the other Georges.

103 Rich's Buildings are marked and named at the top of Asher Lane by Ashmead in 1828 (FIG 168) though the latter is not actually named. Rocque in 1742 (FIG 1(7) and Donne in 1773 (FIG 170) indicate Asher Lane but not Rich's Buildings, suggesting the latter had been built in the late C18 or early C19. Rich's Buildings, though not named as such, are still at the head of Asher Lane in 1883 (FIG 174) and 1903 (FIG 175), but are now (FIGS 176, 78) under the south end of St Matthias

House, a Corporation multiple-dwelling.

104 The term "junk" here is evidently used in its original meaning of old rope, in which way the reporter also uses it. The OED indeed first notes its use to mean general rubbish - and that as a colloquialism - only in 1913.

105 In the possibly even more squalid slum of the northern Kensington Potteries rents also rose in the second half of the C19. The nightly rates at lodging-houses had gone up in the 1890s first with abolition of the free Sunday night for weekly lodgers and then in some places with an increase in the cost from 4d to 5d, and this may have been partly because of an increased demand for housing as some of those evicted from central London slums moved into the area. Rents for rooms in the 1890s averaged 2s6d-3s6d a week for a single back room and 4s6d-6s6d for two small rooms, a furnished back room in 1899 costing 4s6d and a furnished front room 5s-6s; in 1849 the average rent for an entire small cottage in the Potteries had been ca.2s9d a week, and many persons were holding long leases and paid only ground rent (Malcolmson 1970: 36-7).

106 Grandfather of the film actress Angela Lansbury.

107 Mrs George is not listed after 1883; the Williams family disappears after 1883 but a William Pring takes over as pipemaker at their premises. Ring closed down either in 1883 or 1884, and may have been taken over by Hawley.

108 The Mercury and Daily Post correspondent says 1867, Arrowsmith's Dictionary of Bristol 2nd ed 1906 - cited as Anonymous 1906 ed - says (p.55) 1866.

109 The latest date mentioned in the booklet is 20 September 1928, when The Bishop of Bristol opened the converted Albion Pl houses (p.7).

CHAPTER 7:
SUMMARY AND CONCLUSIONS

1 It is much to be hoped that some enterprising body will sponsor a comprehensive filmed record of the last British, Dutch, and German pipemaking concerns before it becomes too late.

2 At a tangent to pipemaking, but nevertheless of interest because pipemakers manufactured them as a sideline, it is the recent finding of wig-curlers of waste pipeclay at Lower Castle St (Arch. Rev. 7 (1972) 62 s.v. Bristol - Lower Castle St), one with the initials TB, dated to the C18. No study has ever been made of wig-curlers to this writer's knowledge, but they were being made by pipemakers by the late C17, for Houghton (1693/4: 205) mentions their being specifically made for the purpose; in North America they are quite frequent on sites dating between ca.1700 and ca.1780 (I. Noël Hume 1970c: 321-3). As noted earlier (p.186), two mid-C18 pipekilns at Helston in Cornwall produced a number of wig-curlers as well as the pipes which dated the kilns (Douch 1971: 148, 146). According to Parsons (1964: 232),

pipe-fragments were being used as wig-curlers by the middle of the C17.

3 Now called The Local Historian.

APPENDIX II:
CHURCHWARDEN PIPES AND THE SOUTHORN FAMILY

1 Edward VII succeeded his mother, Victoria, in 1901 but owing to illness was not crowned until 1902. A date later than 1871 is also indicated by several of the depicted pipes having vulcanite mouthpieces, which were first devised in 1878 by an English firm (A. Dunhill 1924: 247)

2 On the Southorn stamps a number appears after BROSELEY - this is not a code-number for the pipe type, as might be supposed, but a code-number for the maker, to enable the quality of his production to be checked (ex. info. D.R. Atkinson conversation 14 November 1971)

3 Subsequent evidence indeed suggests this was the case. The story, obtained by a local researcher, Miles Taylor, from the late Mrs Southorn, mother of Mr Clive Southorn and passed on to this writer by David Atkinson (in litt. 23 November 1974), is that there was a rivalry between the Roden and Southorn families and that Edwin Southorn, son of the first William Southorn, married a Roden and as a result separated from his brother William jr and was practically disowned by his father. Edwin worked at the Pitchyard (see p.988 below) and his brother William at Legg's Hill, the site of the present gate-making works owned by Mr Clive Southorn; the father may have worked with William jr or at the Smitheman works latterly occupied by the Southorn family (p.988 below), but as Mrs Southorn said unfired pipes were brought from the Pitchyard (i.e. from Edwin's works) to Legg's Hill to be fired by William jr it seems more likely, in view of the father's hostility to Edwin, that he (the father) did not work at Legg's Hill or else that by this time he was dead. I am extremely grateful to M.J. Taylor and D.R. Atkinson for this information.

APPENDIX V:
THE TERMS "SAGGAR" AND MUFFLE"

1 Shaw also, in one of those fits of over-learning to which C18 and C19 writers were sometimes prone, derives the term saggar "from the Heb. sagar to burn; and to this day applied as segar, to a rolled leaf of tobacco for burning while its fumes are inhaled" (S. Shaw 1829: 103, 1970 ed).

BIBLIOGRAPHY AND REFERENCES

Introduction

The compilation of this section has been done along more or less orthodox lines. Articles in journals or series publications are cited within inverted commas and the journal or series name italicized (underlined), except where the article has become a monograph and occupies an entire issue in which case the article is treated as a book and the whole title underlined. In this latter case the name of the publication series is appended in brackets. Unpublished MSS are cited by title, which is neither put in inverted commas nor italicized. Authors' names have the first name given only when the author is known to be a woman (except in Slavic language references where the gender of the writer is evident from the name form); this is to facilitate references to "he" and "she". The date given with the author's name is that of publication where known; particularly with modern journals therefore, it does not always agree with the date associatd with the volume number in question. When publication date of a journal is not known the date with the volume number is used. "Mac" and "Mc" are not separated from each other but are listed together separately after other "M" entries; Irish "O'" or "Ó "(sans apostrophe) are similarly listed separately after other "O" entries. Surnames including "d'", "de", "le", and "van" whether capitalized or not have been listed under the main word except where the auxiliary is an integral part of the surname (e.g. DeJarnette, Lefrancq, VanStone). Place of publication for journal is given only for obscure items (where known) or when the title is not sufficiently helpful. Personal communications are listed in a separate section following the main entries.

An asterisk preceding a reference indicates it deals with, or includes information on, either pipes or smoking or tobacco. In a number of cases it will be obvious from the title the work in question has only the most peripheral dealings with these topics; generally all articles which include at all meaningful comments have been asterisked but books containing only incidental references have not been. An exception among the latter, however, are published documentary sources (such as the Bristol Record Society's publication series) which it is felt are important enough to warrant such marking.

Virtually all asterisked works (or copies of relevant parts) are in the writer's library. It cannot be claimed the collection is exhaustive, for there is no centralized clearing-house for North American archaeological publications, and British publications appearing in the indispensable annotated listings in Council for British Archaeology publications (e.g. their annual *Archaeological Bibliography for Great Britain & Ireland*) are often far from easy to obtain in North America, but it is hoped nothing of importance has been overlooked. A phenomenon of recent years, however, even since this writer commenced this study in the autumn of 1967, has been the almost geometrically-increasing literature on pipes, particularly in North America, which is out of all proportion even in the burgeoning field of recent archaeology (cf Cotter and Hershey (comp.) 1973: 119-20). As regards some of it, one is reminded of Housman's complaint (1930: 111) that "The merciless prolixity" of commentators has "chattered implacably and unprofitably on"; but Housman also sais on another occasion that a scholar must expect to "spend much of his life in acquiring knowledge which for its own sake is not worth having and in reading books which do not in themselves deserve to be read; at illa iacent multa et praeclara relicta" (Carter (ed) 1961: 159). All works available to me up to November 1974 have been consulted, and a decreasing number of others up to December 1975 have been incorporated where practical.

American spelling habits such as "archeology" have been followed in titles where these are used in the original.

Abrams, G.H.
*1967
"The Cornplanter Cemetery", Pennsylvania Archaeologist vol XXXV no 2 (August 1965) 59-73

Ackerman, R.E.
*1968
The Archeology of the Glacier Bay Region, Southeastern Alaska. Washington State University Laboratory of Anthropology Report of Investigations no 44 (1968). Pullman

Acland, J.E.
*1926
[Note on early clay tobacco pipes], Proceedings of the Dorset Natural History and Antiquarian Field Club vol XLVII (1926) lvii-lviii

Adams, P.J.
1961
Geology and Ceramics. HMSO, London

Addyman, P.V.
*1965
"Coney Island, Lough Neagh: Prehistoric Settlement, Anglo-Norman Castle, and Elizabethan Native Fortress", Ulster Journal of Archaeology vol 28 (3rd ser) (1965) 78-101

Addyman, P.V. and Biddle, M.
*1962
"Medieval Cambridge: Recent Finds and Excavations", Proceedings of the Cambridge Antiquarian Society vol LV (1961-62) 74-134

Addyman, P.V. and Marjoram, J.
*1972
"An 18th-Century Mansion, a Fishpond, a Post-Medieval Finds from St Neots, Huntingdonshire", Post-Medieval Archaeology vol 6 (1972) 69-106

Albright, F.P.
*1958

"Clay Pipe Making at Salem, North Carolina", The Chronicle of the Early American Industries Association, Inc. vol XI no 2 (June 1958) 18-20 and 24

Alexander, L.T.
*1955
"Introduction to Tobacco Pipe Stem Hole Sizing - Factors of Proof of Certitude", Bulletin of the Archaeological Society of Delaware vol VII no 1 (December 1955) 1-2
*1967
"English Clay Tobacco Pipes", Quarterly Bulletin, Archeological Society of Virginia vol 21 no 3 (March 1967) 58-66
*1972
"A Unique 'TD' Clay Pipe (and Associated Artifacts)", Bulletin of the Archaeological Society of Delaware no 9 (n.s.) 28-34
*1973
"New Light on Dutch Clay Pipes and the Baker 'Crowned 5' Dutch Clay Pipe", The Archeolog vol XXV (Fall 1973) 21-27. Bethel, Delaware

Alfold, B.W.E.
1968
"The Flint and Bottle Glass Industry in the Nineteenth Century: A Case History of a Bristol Firm ", Business History vol X no 1 (January 1968) 12-21. London
*1973
W.D. & H.O. Wills and the Development of the U.K. Tobacco Industry 1786-1965. Methuen, London

Allen , G.C.
1929
The Industrial Development of Birmingham and the Black Country 1860-1927, 1966 ed (introduction by J.F. Rees). Cass reprints, London

Alvey, R.C.
*1972
"Clay Tobacco Pipes", p.30 in M.W. Ponsford "Nottingham Town Wall: Park Row Excavations", Transactions of the Thoroton Society of Nottinghamshire vol LXXV (1971) 5-31
*1973
"Clay Pipe Makers of Nottingham", op. cit. vol LXXVI (1972) 35-45
*1974
"A Cesspit Excavation at 26-28 High Pavement, Nottingham", op. cit. vol LXXVII (1973) 53-73

Andersen, A.B.
*1974
"A Dutch Galliot which struck a Rock in 1677", The International Journal of Nautical Archaeology and Underwater Exploration vol 2 no 1 (March 1974) 91-100

Andrews, J.H.
1955
"Anglo-American Trade in the Early Eighteenth Century," *Geographical Review* vol XLV (1955) 99-110. New York
1956
"Some Statistical Maps of Defoe's England", reprinted from *Geographical Studies* vol 3 (1956) 33-45 in A.R. Baker, J.D. Hamshere, and J. Langton (eds) *Georgraphical Interpretations of Historical Studies* pp193-207. David and Charles, Newton Abbot

Angus, J. (transcriber) and Vanes, Jean (ed)
1975
The Ledger of John Smythe 1538-1550 (Bristol Record Society's Publications vol XXVIII and Royal Commission on Historical Manuscripts Joint Publications no 19). HMSO, London

Angus-Butterworth, L.M.
1958
"Glass", pp358-78 in C. Singer, E.J. Holinyard, A.J. Hall, T.I. Williams *et al* *A History of Technology vol IV: The Industrial Revolution c.1750-c.1850.* Oxford University Press

Anonymous
*n.d.[1]
Guide to the Abbey House Museum. Leeds City Museums (ca.1967)
*n.d.[2]
Guide - La Musée du Tabac, Bergerac. Bergerac (obtained 1967)
*n.d.[3]
Tobacco: its History, Culture and Manufacture. W.D. and H.O. Wills, Bristol
*n.d.[4]
"Norresundbys 'Kejserpiber' for dagens lys", *Ny* *Tid.* Aalborg, Denmark (article from newspaper, ca.1957)
*n.d.[5]
Astleys of Jermyn St. Booklet published by the pipe firm of Astleys, London
*n.d.[6]
Pipe Smoking. Booklet published by tobacco firm of Niemeyers, Groningen
*n.d.[7]
Kaywoodie Catalog. Catalogue of Kaywoodie Pipes Inc, New York
*n.d.[8]
A Guide to Pipe Smoking and its History. Booklet published by the Pipe and Tobacco Council, New York
*n.d.[9]
An Up-to-Date Range of Shapes available in London made Briars and *Presenting the Blakemar Briar*. Two catalogues from R. Martin, Litchborough, Northamptonshire
*n.d.[10]
Leaflet produced by Brigham Pipes Ltd, Toronto, illustrating their range of pipe styles
n.d.[11]
American Clay Pipe Works Incorporated. Catalogue of the American Clay Pipe Works Inc, New York (poss. dating to beginning of C20)

*n.d.[12]
Patterns of Goods manufactured by William Southorn and Co., Wholesale and Export Tobacco Pipe Manufacturers, Brosely, Shropshire. Poster (prob. dating to beginning of C20) illustrating William Southorn products
*n.d.[13]
Douwe Egberts Pijpenkamer "In de Witte Os". Douwe Egberts, Utrecht
*n.d.[14]
The Story of the Imperial Tobacco Group. Information Brochure no 1, Imperial Tobacco Group, London
*n.d.[15]
A History of the Tobacco Trade. Information Brochure no 2, Imperial Tobacco Group, London
*n.d.[16]
A Brief Review of Tobacco Duty in the United Kingdom. Information Brochure no 3, Imperial Tobacco Group, London
*n.d.[17]
Growing Flue-Cured Virginia Tobacco in Rhodesia. Information Brochure no 4, Imperial Tobacco Group, London
*n.d.[18]
Growing Flue-Cured Virginia Tobacco in America. Information Brochure no 5, Imperial Tobacco Group, London
*n.d.[19]
Growing Cigar Tobaccos. Information Brochure no 6, Imperial Tobacco Group, London
*n.d.[20]
From Tobacco Auction to Bonded Warehouse. Information Brochure no 7, Imperial Tobacco Group, London
*n.d.[21]
The Manufacture of Cigarettes. Information Booklet no 8, Imperial Tobacco Group, London
*n.d.[22]
The Manufacture of Pipe Tobacco and Snuffs. Information Brochure no 9, Imperial Tobacco Group, London
*n.d.[23]
The Manufacture of Cigars. Information Brochure no 10, Imperial Tobacco Group, London
n.d.[24]
Plymouth and Bristol Hard Paste Porcelain. City Art Gallery, Bristol
n.d.[25]
Bristol Pottery 1786-1860. City Art Gallery, Bristol
n.d.[26]
Homes, As They Are and As They Will Be. Bristol Churches Tenements Association (ca.1930)
*n.d.[27]
The Worshipful Company of Tobacco Pipe Makers and Tobacco Blenders. Leaflet published by the Company, London
*n.d.[28]
Dunhill Pipes and Dunhill Parker Hardcastle. Two catalogues from Alfred Dunhill of London Ltd, Toronto

*n.d. [29]
Dunhill Pipe Shapes Chart: The Classic Range and the Collectors' Range. Catalogue from Alfred Dunhill Ltd, London
*n.d.[30]
"Hij delf pijpengeschiedenis uit Haarlems bodem", Nieusblad voor pijprokers unknown issue p.10. Amsterdam
*n.d.[31]
"Pijpebakker", Ons Heem vol XIII unknown number (1958 or 1959) p.60. Antwerp
*1770
A New Royal and Universal Dictionary of Arts and Sciences: or Complete System of Human Knowledge..., vol 1 (1770) article "Pipe". Cook, London
1771
op. cit., vol II (1771) article "Glass"
*1852
"Pipe-Clay and Clay Pipes", Harper's New Monthly Magazine vol IV no xxiii (April 1852) 688-90
*1855
[Note on a donation of two pipes, one marked John Hunt, the other IH], Proceedings and Transactions of the Kilkenny and South-East of Ireland Archaeological Society vol III (1854-5) 371
*1856a
"Tobacco-Pipes", Chambers's Journal vol 5 no 110 (January-June 1856) 92-5
*1856b
"Antiquity of Smoking", op. cit. vol 6 no 138 (July-December 1856) 128
*1856c
A Sketch prepared for the Celebration of the Opening of the Grand Trunk Railway of Canada, by a Sub-Committee of the Celebration Committee. J. Lovell, Montreal (also reprinted in Canadian Merchants' Magazine and Commercial Review vol 1 no 3 (June 1857) and in Revue d'histoire de l'Amérique française vol VI no 1 (juin 1952) 126-39
*1868
A History of American Manufactures from 1608-1860...(3rd ed revised and enlarged), vol I. Young, Philadelphia (reprinted 1967 by Johnson, New York)
*1870
"Fabrique de pipes et ouvrages en terre de MM. D. et W. Bell", Annuaire manufacturier de Québec 1870-1, pp71-2
*1875
Catalogue of the firm of R. Hovenden and Sons of London dated 1 January 1875, pp108-11
1884
The Homes of the Bristol Poor (reprinted from a series of articles appearing 1883 in the Bristol Mercury and Daily Post)
*1890
"The Oldest Cigarette Manufacturer", Tobacco vol X 1 November 1890 p.335. London
*1900
Associated Tobacco Pipe Makers' Society of Scotland and Ireland: Price List agreed between Employers and Employees the same to come in force August 20th 1900. Labour Literature Society, Glasgow
1903

"Wealth and Want, Glitter and Grime", *The New Penny Magazine* 3 January 1903 pp448-52(?). London
1906 ed
Arrowsmith's Dictionary of Bristol (1st ed 1884). Arrowsmith, Bristol
*1907
[Clay pipes from Castleshaw], *Proceedings of the Lancashire and Cheshire Antiquarian Society* vol XXV (1907) 212
*1921a
"Closed Down at Last", *Bristol Evening News* 9 December 1921, p.6
*1921b
"Making a Clay Pipe" by A Pipemaker, *Daily Mail*, issue in December 1921
*1951
Wereldcongres voor tabak: catalogus van de tentoonstelling. Amsterdam
*1954a
Clay Pipe Makers. Manuscript, Castle Museum, York
*1954b
"He's Been Making Clay Pipes for 60 Years", *Evening News* 21 June 1954 p.9, Glasgow, with letter dated 21 October 1966 from *Daily Record*, Glasgow
*1960
Tobacco and Smoking in Art. Exhibition catalogue, North Carolina Museum of Art, Raleigh
1961
"Peat Firing of Economic Boilers", *The Steam Engineer* February 1961 5 pages (offprint)
*1962a
"Making Clay Pipes", anonymous letter to editor with photographs of Southorn of Broseley's kiln and workshop *Country Life* vol CXXXI no 3386 25 January 1962 p.185
*1962b
Encyclopedia Americana vol XXII entry "Pipe" p.108. 1962 (Canadian) ed, Americana Corporation of Canada, Montreal
*1962c
Indians of Ontario, pp14-15. Department of Citizenship and Immigration, Indian Affairs Branch, Ottawa (also quoted in G.E. Reaman *On the Trail of the Iroquois Indians* (1967) Muller, London, pp78-9)
*1964a
"300 Years of Making Clay Pipes", *Guardian* 13 July 1964. Manchester
*1964b
105 Years of a Family Business: William Christie, Clay Pipe Manufacturer. Pamphlet published by Edinburgh Corporation Libraries and Museums Department
*1965
[Note on pipemaking in Chester area], *The Cheshire Sheaf* vol 60 5 February 1965 pp7-8
*1966a
"The Briar Pipe Maker" [advertisement] *Illustrated London News* 8 January 1966 p.2
*1966b
Catalogue of Iwan Ries and Co, tobacconists, Chicago
*1967
Yorkshire Crafts. Guidebook published by the Castle Museum, York

*1968a
"Bij plateelbakkerij Zenith: Steef en Jan v. Loon: de laasten der Pijpmakers", *Het Vrije Volk* 28 maart 1968 p.5. Gouda
*1968b
"Once a Rich Trade in Clay Pipes", *Bridgnorth Journal* 17 May 1968 p.6. Bridgnorth, Shropshire
*1968c
"Faithful Apprentice to a Pipe Maker", *op. cit.* 14 June 1968 p.6
*1968d
"Historical Dig", *Tideway* (The Official Newsletter of The Port of Bristol Authority) September 1968 2nd-5th pages
*1968e
"Presidential Campaign Pipes from the Collection of Peter Shurke", *Spinning Wheel* vol 24 no 11 (November 1968) 52-3. Hanover, Pennsylvania
*1970a
"Site of Fort Calgary", *Glenbow* vol 3 no 5 (September 1970) 3-4. Calgary, Alberta
*1970b
[Note on excavation of a pipekiln], *Hertfordshire Archaeological Review* vol 2 (1970) 33
*1971a
"Man and his Pipe", *Imperial Tobacco Group Review* vol 2 no 3 (May 1971) 18-20. London
*1971b
"Accessions to the Museum, 1969", *Wiltshire Archaeological and Natural History Magazine* vol 65 (1970) 214-7
*1972
"Art in Cigar Box Labels", *Imperial Tobacco Group Review* vol 3 no 4 (August 1972) 18-21. London
*1973a
"Snuff and Nonsense", *Imperial Group Review [Imperial Tobacco Group Review retitled]* vol 4 no 3 (May 1973) 11-15. London
*1973b
"Give me a Cigar", *op. cit.* vol 5 no 1 (November 1973) 6-7.

Apperson, G.L.
*1914
The Social History of Smoking. Secker, London
*1935
"Extracts from 'The Social History of Smoking'", *Wills's Works Magazine* vol VII no 52 (February 1935) 148-9. Bristol

Apschnikat, K.
*1972
Pamplin Red Clay Pipes. Pamphlet published by Appomattox Court House National Historic Park, National Park Service, Appomattox, Virginia

Archer, M.
1966
"Delftware made at the Glasgow Pottery of Delftfield: A Starting Point for

Research", The Connoisseur vol CLXIII no 665 (September 1966) 16-22
1969
"Delftware from Brislington", op. cit. vol CLXXI no 689 (July 1969) 152-61
1971
"English Delftware: The Industry at Lambeth in the Mid-Eighteenth Century", op. cit. vol CLXXVI no 710 (April 1971) 238-46

Ascher, R. and Fairbanks, C.H.
*1971
"Excavation of a Slave Cabin: Georgia, U.S.A.", Historical Archaeology 1971 vol V pp3-17

Ashmore, O.
1969
The Industrial Archaeology of Lancashire. David and Charles, Newton Abbot

Ashton, T.S.
1924
Iron and Steel in the Industrial Revolution, 3rd ed 1963. Manchester University Press
1939
An Eighteenth Century Industrialist: Peter Stubbs of Warrington, 1756-1806. Manchester University Press
1948
The Industrial Revolution 1760-1830. Oxford University Press
1955
An Economic History of England: The 18th Century, 1961 ed. Methuen, London

Ashurst, D.
*1971
"Excavations at Gawber Glasshouse, near Barnsley, Yorkshire", Post-Medieval Archaeology vol 4 (1970) 92-140

Atherton, W.H.
1914
Montreal 1534-1914: vol II Under British Rule 1760-1914. Clarke, Montreal

Atkinson, D.R.
*1958
"Sussex Clay Tobacco Pipes", Archaeological News Letter vol 6 no 5 (1958) 117-22
*1962a
"Makers' Marks on Clay Tobacco Pipes found in London", op. cit. vol 7 no 8 (April 1962) 182-8)
*1962b
[Note on a pipekiln at Lewes, Sussex], ibib. 189
*1964a
"Sussex Clay Tobacco Pipes and Pipe Makers", Sussex Notes and Queries vol XVI no 3 (May 1964) 73-81

*1964b
"Sussex Clay Tobacco Pipes and Pipe Makers" (concluded), *op. cit.* vol XVI no 4 (November 1964) 125-8

*1965a
"Makers' Marks on Clay Tobacco Pipes found in London: Part II", *Archaeological News Letter* vol 7 no 11 (January/February 1965) 249-56

*1965b
"Clay Pipes made at Lewes", *Sussex Notes and Queries* vol XVI no 5 (May 1965) 170-2

*1965c
"Tobacco Pipes and Pipemakers of Marlborough", *Wiltshire Archaeological and Natural History Magazine* vol 60 (1965) 85-95

*1966
"Further Notes on Sussex Clay Tobacco Pipes and Pipemakers", *Sussex Notes and Queries* vol XVI no 8 (November 1966) 272-6

*1967
"Further Notes on Sussex Clay Tobacco Pipes and Pipemakers", *op. cit.* vol XVI no 9 (May 1967) 312-7

*1968
"Sussex Pipes and Pipemakers: Further Notes", *op. cit.* vol XVII no 1 (May 1968) 11-14

*1969a
(Rejoinder to Candlin's and Salzman's observations in *SN&Q* vol XVII no 2), *op. cit.* vol XVII no 3 (May 1969) 104-5

*1969b
Clay Tobacco Pipes and Pipemakers of Marlborough. 1965c republished privately with two extra pages of additions and corrections

*1969c
General Notes on the Style of Clay Tobacco Pipes in the Portsmouth Area *and* Clay Tobacco Pipes: Portsmouth. Manuscripts from author

*1970a
"Clay Tobacco Pipes", pp 182 and 186 in K.J. Barton "The Contents of an Eighteenth-Century Well at Bishops Waltham, Hants", *Post-Medieval Archaeology* vol 3 (1969) 166-87

*1970b
"Clay Tobacco Pipemakers of Chichester", *Sussex Notes and Queries* vol XVII no 5 (May 1970) 158-61

*1970c
"Clay Tobacco Pipes found at Shaftesbury", *Proceedings of the Dorset Natural History and Archaeological Society* vol 91 (1970) 206-15

*1971
"Clay Tobacco Pipemakers of Salisbury, Wiltshire", *Wiltshire Archaeological and Natural History Magazine* vol 65 (1970) 177-89 and pl IX

*1972a
report on lecture on "Clay Tobacco Pipes" by D.R. Atkinson, *Fulham and Hammersmith Historical Society Archaeological Section Newsletter* vol 1 no 9 (January-April 1972) 42-5. London

*1972b
"Clay Tobacco Pipes", pp72, 74-6 in S. Moorhouse "Finds from Basing House, Hampshire (c.1540-1645): Part Two", *Post-Medieval Archaeology* vol 5 (1971) 35-76

*1972c
"Jeffry Hunt Pipes", *Wiltshire Archaeological and Natural History Magazine* vol 66 (1971) 156-61
*1972d
(with introduction by A. Oswald) "A Brief Guide for the Identification of Dutch Clay Tobacco Pipes found in England", *Post-Medieval Archaeology* vol 6 (1972) 175-82
*1972e
"A New List of Sussex Pipemakers", *Sussex Archaeological Collections* vol CX (1972) 37-43
*1973
"Further Notes on Clay Tobacco Pipes and Pipemakers from the Marlborough and Salisbury Districts", *Wiltshire Archaeological and Natural History Magazine* vol 67 (1972) 149-56

Atkinson, D.R. and Oswald, A.H.
*1969
"London Clay Tobacco Pipes", *Journal of the British Archaeological Association* vol XXXII (3rd ser.) (1969) 171-227

Averbach, A.
1973
"San Francisco's South of Market District, 1850-1950; The Emergence of a Skid Row", *California Historical Quarterly* vol LII no 3 (Fall 1973) 197-223

Ayers, H.G., and Little, J.G.
*1967
"18FR100, A Woodland Site in Piedmont Maryland", *Quarterly Bulletin, Archeological Society of Virginia* vol 22 no 1 (September 1967) 26-38

Bagnall, Dorothy
*1965
Collecting Cigarette Cards and other Trade Tokens. Arco Publications, London

Bailey, W. (ed)
*1936
"Check List: British Indian Trade Clay Trade Pipes" (sic), *Arrow Points* vol 21 no 5-6 (1936) 47-49. Alabama Anthropological Society, Montgomery

Bain, John jr
*1896
Tobacco in Song and Story. Caldwell, New York and Boston

Baker, J.N.L.
1936
"England in the Seventeenth Century", pp387-443 in H.C. Darby (ed) *Historical Geography of England before A.D. 1800*. Cambridge University Press

Barbeau, M.
*1941
"Potiers canadiens", *Mémoires de la Société Royale du Canada* Section 1 (1941) 13-21
*1942
Maître artisans de chez nous. Editions du Zodiaque, Montreal

Barbeau, M. and Wilson, C.
*1944
"Tobacco for the Fur Trade", *The Beaver* outfit 274 (May 1944) 36-39. Winnipeg

Barber, D.M.
*1966
"Kaolin Pipe Stems, An Analysis of their Value to local Archeology", *Museum Service* (Bulletin of the Rochester Museum of Arts and Sciences) May-June 1966 pp88-93. Rochester, New York state

Barber, E.A.
*1880a
"Antiquity of Tobacco Pipes in Europe - Part I, Great Britain", *The American Antiquarian* vol II (July 1879-June 1880) 1-8. Chicago
*1880b
"Antiquity of the Tobacco Pipe in Europe - Part II, Switzerland", *ibid*. 117-22
*1882a
"Fairy Pipes, Early Smokers", *The Continent* vol 1 no 1 (15 February 1882) 13. Philadelphia
*1882b
"Early European Pipes found in the United States", *The American Antiquarian and Oriental Journal* vol IV no 3 (October 1881-October 1882) 198-202. Chicago
*1882c
Catalogue of the Collection of Tobacco Pipes deposited by Edwin A. Barber. The Pennsylvania Museum and School of Industrial Art, Philadelphia
Barfield, L
*1961
"Clay Pipes", pp54-5 in J. Alexander "Excavation of the Chestnuts Megalithic Tomb at Addington, Kent", *Archaeologia Cantiana* vol LXXVI (1961) 1-57

Baring-Gould, W.S.
1962
Sherlock Holmes: A Biography of the World's first Consulting Detective. Hart-Davis, London

Baring-Gould, W.S. (ed)
1968
The Annotated Sherlock Holmes, 2 vols. Murray, London

Barka, N.F.
*n.d.

The Excavation of Sturgeon Fort (FhNl-1) (Saskatchewan). Manuscript report, National Historic Parks and Sites Branch, Parks Canada, Ottawa
*1965
Historic Site Archaeology at Portland Point, New Brunswick, Canada - 1631-c.1830. Manuscript report, National Historic Parks and Sites Branch, Parks Canada, Ottawa (also Ph.D. thesis, Harvard University, Cambridge, Massachusetts)
*1970
Excavations at Ile-aux-Noix (5G), P.Q. - 1964 Season. Manuscript report, National Historic Parks and Sites Branch, Parks Canada, Ottawa

Barnes, G.
1967
Stepney Churches: An Historical Account. Faith Press, London

Barnett, A.W., and Schumacher, P.J.F.
*1967
An Analysis of the Archeological Excavation by the U.S. Forest Service at Old Sitka, Alaska, in 1934-1935. Department of The Interior, National Park Service, San Francisco

Barnett, R.C., Klein, P., and Thomas, N.
1970
"A New Gallery at Birmingham City Museum for the Pinto Collection of Treen", Museums Journal vol 70 no 1 (June 1970) 24-28

Barrett, R.
*1970
"The Early Days of Smoking in Britain", Imperial Tobacco Group Review vol 1 no 4 (August 1970) 2-5. London
*1972
"Trappings Traditional to the Smoker's Art", op. cit. vol 3 no 3 (May 1972) 18-21

Bartholemew, J.G. (publisher)
1943
Survey Gazeteer of the British Isles, 9th ed (1966 reprint). Bartholemew, Edinburgh

Bartlett, C.S. jr
*1974
"Historic Occupation of the Roberts Site, 44 Wg 21, Washington County, Virginia", Quarterly Bulletin, Archeological Society of Virginia vol 28 no 3 (March 1974) 124-34

Bartlett, J.
*1970
"North Walls Excavation", Kingston upon Hull Museums Bulletin no 4 (March 1970) 1-23

Bartlett, K.S., with Brears, P.C.D. and Moorhouse, S.
*1972
"Excavations at Potovens, near Wakefield, 1968", *Post-Medieval Archaeology* vol 5 (1971) 1-34

Barton, D.B.
1966
A History of the Cornish Clay Industry. Barton, Truro

Barton, K.J.
1956
"The Buckley Potteries II: Excavations at Prescott's Pottery 1954", *Flintshire Historical Society Publications* vol XVI (1956) 63-87
1961
"Excavations at Back Hall, Bristol, 1958", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol LXXIX pt II (1960) 251-86
1962
"Some Evidence for Two Types of Pottery manufactured in Bristol in the Early 18th Century", *op*. *cit*. vol LXXX (1961) 160-8
1963
"The Medieval Pottery of the Saintonge", *Archeological Journal* vol CXX (1963) 201-14
1964
"A Medieval Pottery Kiln at Ham Green, Bristol", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol LXXXII (1963) 95-126
1965
"The Excavation of a Medieval Bastion at St Nicholas's Almshouses, King Street, Bristol", *Medieval Archaeology* vol 8 (1964) 184-212 and pl XVII
1968
"A Note on the Distrbution of Ham Green Pottery", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol LXXXVI (1967) 201-2

Bastien, A.P.
*1973
La Pipe. Payot, Paris

Bastow, H.
1920
American Glass Practice. The Glassmaker, Pittsburgh

Bax, A. and Martin, C.J.M.
*1974
"*De Leifde*: A Dutch East Indiaman lost on the Out Skerries, Shetland, in 1711", *The International Journal of Nautical Archaeology and Underwater Exploration* vol 3 no 1 (March 1974) 81-90

Baynes, E.N.
*1914
"Notes on Tobacco and Old Tobacco Pipes", *Transactions of the Anglesey Antiquarian Society and Field Club* no vol number (1914) 28-30

Beames, T.
1850
The Rookeries of London, 1852 ed (1970 reprint). Cass reprints, London

Beaubien, P.
*1951
Preliminary Report of the Archeological Investigations at Fort Laramie, 1950. Typescript, Department of The Interior, National Park Service, Omaha

Beauchamp, W.M.
*1898
"Earthenware of the New York Aborigines", Bulletin of the New York State Museum vol 5 no 22 (October 1898) 71-146

Beavan, A.B.
1899
Bristol Lists: Municipal and Miscellaneous. Taylor et al, Bristol

Beaver, S.H.
1964
"The Potteries: A Study of the Evolution of a Cultural Landscape", Transactions and Papers, Institute of British Geographers publication no 34 (June 1964) 1-31

Beche, H.T. De La, and Playfair, L.
1845
"Report on the Sanatory Condition of Bristol", pp241-64 in Health of Towns Commission: Report on the State of Bristol, and other Large Towns. HMSO, London

Beckensall, S.G.
*1967
"The Excavation of Money Mound", Sussex Archaeological Collections vol CV (1967) 13-30

Beckwith, I.S.
1967
"The River Trade of Gainsborough 1500-1850", Lincolnshire History and Archaeology no 2 (1967) 3-20

Beer, J. de
*1939
"Wenken over het vervaardigen van steenen pijpen", Handelsblad 4 juni 1939, page number not known. Antwerp

Belcher, Jill and Jarrett, M.G.
*1972
"Stem-Bore Diameters of English Clay Pipes: some Northern Evidence", Post-Medieval Archaeology vol 5 (1971) 191-3

Benham, C.E.
*1906
"An Ancient Colchester Industry: the Tobacco-Pipe Factory", *Essex County Standard* 20 October 1906. Colchester, Essex

Bennett, G.
*1972
"Caxton House: New Marsden Son and Hall Headquarters, *The Caxtonian* vol 6 no 46 (Winter 1972) 338-44. Bristol

Bennett, M. and Cole, R.
*1973
"The Moot Site (Sullivans) OND 3-4" by MB (pp1-20) and "Using Kaolin Pipe Stems to date the Moot Site OND 3-4" by RC (pp21-25), *Chenago Chapter NYSAA* vol 14 no 1 (June 1973). New Berlin, New York state

Beresford, M.
1971
"The Back-to-Back House in Leeds, 1787-1937", pp93-132 (Chapt III) in S.D. Chapman (ed) *The History of Working-Class Housing: A Symposium*. David and Charles, Newton Abbot

Berry, C.J.
*1963
The Manufacture of Clay Tobacco Pipes in Rainford. Privately printed

Betjeman, J.
1969
Victorian and Edwardian London from Old Photographs. Batsford, London

Bezodis, P.A.; Ison, W.; Ball, Marion; and Grogan, A.H.
1957
Spitalfields and Mile End New Town (Survey of London vol XXVII). Athlone Press, University of London

Bickley, F.R. (ed)
1900
The Little Red Book of Bristol, 2 vols. Hennons, Bristol, and Sotheran, London

Bimson, Mavis
1959
"References to John Dwight in a Seventeenth Century Manuscript", *English Ceramic Circle Transactions* vol 4 no 5 (1959) 10-12
1961
"John Dwight", *op*. *cit*. vol 5 no 2 (1961) 95-109 and pls 111-24

Binford, L.R.
*1962
"A New Method of Calculating Dates from Kaolin Pipe Stem Samples",

Southeastern Archaeological Conference News Letter vol 9 no 1 (June 1962) (Papers presented at the 1st and 2nd Conference on Historic Site Archaeology) 19-21. Cambridge, Massachusetts

*1972

"The 'Binford' Pipe Stem Formula: a Return from the Grave", The Conference on Historic Site Archaeology Papers 1971 vol 6 (1972) 230-53

Bird, J.B.

*1945

"Archaeology of the Hopedale Area, Labrador", Anthropological Papers of the American Museum of Natural History, New York vol 39 pt 2 (1944-45) 117-88 and pls 9-12

Birk, D.A.

*1975

"Recent Underwater Recoveries at Fort Charlotte, Grand Portage National Historical Monument, Minnesota", The International Journal of Nautical Archaeology and Underwater Exploration vol 4 no 1 (March 1975) 73-84

Birmingham, Judy (ed)

*1971

"Research Techniques: 4, Clay Tobacco Pipes", Australian Society for Historical Archaeology vol 1 no 3 (September 1971) 4th-6th pages

Birmingham, Judy (ed) and Fahy, K. (introd.)

1974

Lithgow Pottery: Three Early Catalogues from New South Wales (Studies in Historical Archaeology no 2, 1974). Sydney

Biser, B.T.

1899

Elements of Glass and Glass Making, chemically rev. by J.A. Koch. Glass and Pottery Publishing Co, Pittsburgh

Bitard, A.

*n.d.

Les arts et métiers illustrés, vol I. Rouff, Paris (ca. 1885)

Bivins, J. jr

*1972

The Moravian Potters in North Carolina. Old Salem Inc, Winston-Salem, North Carolina

Blair, C.D.

*1965

The Potters and Potteries of Summit County, 1828-1915 Summit County Historical Society, Akron, Ohio

Blair, J.L.

*1969

"Excavation at Burnt House Field Site", *Quarterly Bulletin, Archeological Society of Virginia* vol 24 no 1 (September 1969) 56-63
*1972
"Excavations at Lee Hall", *op. cit.* vol 27 no 1 (September 1972) 1-35

Bloice, B.J.
*1972
"Norfolk House, Lambeth: Excavations at a Delftware Kiln Site, 1968", *Post-Medieval Archaeology* vol 5 (1971) 99-159

Bluhm, R.K.
1971
"The Somerset Coalfield, 1790-1820", *A Second North Somerset Miscellany* (1971) 52-60

Bolam, C.G., Goring, J., Short, H.L., and Thomas, R.
1967
The English Presbyterians: From Elizabethan Puritanism to Modern Unitarianism. Allen and Unwin, London

Boney, K.
1965
"Study of a Group of English Salt-Glaze Ware", *Antiques* vol LXXXVIII no 6 (December 1965) 834-7

Bonnichsen, R.
1973
"Millie's Camp: An Experiment in Archaeology", *World Archaeology* vol 4 no 3 (February 1973) 277-91. London

Booth, C. (ed)
1892-97
Life and Labour of the People in London, 10 vols. Macmillan, London
Borremans, R. and Lassance, W.
1956a
"Les Potiers d'Andenelle au Moyen Age", *Parcs Nationaux: bulletin trimestriel de l'association Ardenne et Gaume* vol XI (1956) 70-75
1956b
"Recherches archéologiques sur la céramique d'Andenne au Moyen Age", *Archaeologia Belgica* vol 32 (1956) 5-79. Brussels

Borremans, R. and Warginaire, R.
1966
La céramique d'Andenne: recherches de 1956-1965. Stichting het Nederlandse gebruikvoorwerp, Rotterdam

Bourry, E.
*1897
A Treatise on Ceramic Industries, 2nd ed 1911 trans. by A.B. Searle. Scott *et al*, London

Brabner, J.H.F.
*1884-88
The National Encyclopaedia: A Dictionary of Useful Knowledge, 3rd ed 1884-88, "Tobacco Pipes" cols 945-6. Mackenzie, Glasgow. (A new edition of C. Knight (publisher) *National Cyclopaedia of the Industry of All Nations*; 1st ed of Knight 1847-51, 2nd ed 1856-59, 1st ed of Brabner 1867-68, 2nd ed 1875, 3rd ed as above. Entry "Tobacco Pipes" in Brabner same as in Knight (q.v.).)

Brain, J.P.
*1970
Lower Mississippi Survey: The Tunica Treasure (Peabody Museum Harvard University Bulletin no 2). Cambridge, Massachusetts

Bray, R.T.
*1968
Preliminary Archaeological Investigations at First Missouri State Capital, St. Charles, Manuscript report, Missouri State Park Board, Columbia
*1972
Archaeology at the Joseph Smith Homestead, Nauvoo, Illinois. University of Missouri at Columbia

Brears, P.C.D.
*1965
"Potovens Ware Production Sites, Potovens, Wakefield", *Broadsheet no 2, Post-Medieval Ceramic Research Group* (January 1965) 13-20
*1968
"Excavations at Potovens, near Wakefield", *Post-Medieval Archaeology* vol 1 (1967) 3-43
1971
The English Country Potter. David and Charles, Newton Abbot

Bridenbaugh, C.
1968
Vexed and Troubled Englishmen 1590-1642. Oxford University Press, New York

Briggs, A.
1968
"Foreword", pp v-xi in H.J. Dyos (ed) *The Study of Urban History*. Arnold, London

Brongers, G.A.
*n.d.
"Blijde gebeurtenissen in het Oranje-Huis in pijpen terug te vinden", *Nieuwsblad voor pijprokers* unknown issue p.2. Amsterdam
*1964a
Pijpen en tabak. Dishoek, Bussum, The Netherlands
*1964b
Nicotiana tabacum. Niemeyer, Groningen

*(1966)
"Vrouwen rookten al vroeg een pijp", Nieuwsblad voor pijprokers 5e jaargang nummer 3 (1966) 11. Amsterdam

Brongers, G.A. and Poel, J.M.G. van der
*1970
"Porseleinen pijpekoppen in het Niemeyer Nederlands Tabacologisch Museum te Amsterdam en Groningen" (pp150-8) by GAB and "Gedecoreerde pijpekoppen van Nederlandse plattelanders in de negentiende eeuw" (pp159-67) by JMGvdP, Antiek vol 5 (1970-1) nr 3. Lochem, The Netherlands

Brongniart, A.
*1854 ed
Traité des arts céramiques, 2nd ed rev. and expanded by A. Salvetat (1st ed 1844). Béchet jeune, Paris

Brookes, C.
*1969
"Setting the Record Straight", Tobacco no 1064 (September 1969) 97. London

Brooks, G.E. jr
*1970
Yankee Traders, Old Coasters, and African Middlemen: A History of American Legitimate Trade with West Africa in the Nineteenth Century. Boston University Press

Brose, D.
*1967
The Custer Road Dump Site: An Exercise in Victorian Archaeology (Michigan Archaeologist vol 13 no 2, June 1967)

Brose, D. and Essenpreis, Patricia
*1973
A Report on a Preliminary Archaeological Survey of Monroe County, Michigan (op. cit. vol 19 no 1-2, March-June 1973)

Brown, A.S.
*1923
"Pipes and Pipe Smoking", Tobacco vol LXXVI no 13 (26 July 1923) 15-19. London

Brown, F.
1876
"History and Antiquities of Nailsea Court, Co. Somerset, with Genealogical Notes", Journal of the British Archaeological Association vol XXXII (1876) 370-84

Brown, M. III
*1972
English Clay Pipes from a Mid-Seventeenth Century Domestic Site in

Portsmouth, Rhode Island. Paper given at Fifth Annual Meeting of the Society for Historical Archaeology, Tallahassee, Florida, January 1972 (copy from author)

Brown, R.D.
*1935
"A Prehistoric Habitation Site on the St Croix River", Journal of the Minnesota Academy of Science vol 2 (1935) 4-12

Brown, W.E.
*1959
"Tobacco and Tobacco Pipes", in The Victoria History of the Counties of England: Wiltshire, volume 4 (1959) 240-4. Constable, London

Brown, P.S. and Brown, Dorothy N.
*1974
"Tobacco-Pipe Makers of Bath in the 19th Century", Notes and Queries for Somerset and Dorset vol XXX pt 299 (March 1974) 24-28

Brown, P.S. and Sneddon, J.M.
*1973
"Clay Tobacco Pipes from Bath", op. cit. vol XXIX pt 298 (September 1973) 294-6

Browning, A. (ed)
1953
English Historical Documents, vol VIII 1660-1714. Eyre and Spottiswoode, London

Bryant, J.F.
*1787
Verses by J.F. Bryant Together with his Life written by Himself. Privately published

Buchan, J.
1928
Montrose. Nelson, Edinburgh

Buchanan, R.A.
1967
The Industrial Archaeology of Bristol (Bristol Branch of the Historical Association Local History Pamphlets no 18). Bristol
1968
"The Status of Industrial Archaeology", pp1-18 in R.A. Buchanan (ed) The Theory and Practice of Industrial Archaeology. Bath University Press
1969
"The Cumberland Basin, Bristol", Industrial Archaeology vol 6 no 4 (November 1969) 325-33 and 371
1970a
"The Construction of the Floating Harbour in Bristol: 1804-1809", Transactions of the Bristol and Gloucestershire Archaeological Society vol

LXXXVIII (1969) 184-204
1970b
"Industrial Archeology; Retrospect and Prospect", *Antiquity* vol 2 (1970) 13-15
1971
Nineteenth Century Engineers in the Port of Bristol (Bristol Branch of the Historical Association Local History Pamphlets no 26). Bristol
1972a
"I.K. Brunel and the Port of Bristol", *Transactions of the Necomen Society* vol XLII (1969-70) 41-56 and pls V-VI. Cambridge
1972b
Industrial Archaeology in Britain. Penguin, Harmondsworth, England
1972c
Review of *Industrial Archaeology: An Historical Survey* (A. Raistrick) in *Antiquity* vol XLVI no 183 (September 1972) 247-8

Buchanan, R.A. and Cossons, N.
1969
The Industrial Archaeology of the Bristol Region. David and Charles, Newton Abbott

Buchanan, W.T. jr and Heite, E.F.
*1972
"The Hallowes Site: A Seventeenth-Century Yeoman's Cottage in Virginia", *Historical Archaeology 1971* vol V pp38-48 (additional comments on pipes by A.H. Oswald published in *The Society for Historical Archaeology Newsletter* vol 5 no 3 (September 1972) 3 by E.F. Heite)

Buckley, F.
1925
"The Early Glasshouses of Bristol", *Journal of the Society of Glass Technology* vol LX no 3 (March 1925) 36-61. Sheffield

Bullen, R.P. and Brooks, E.
*1949
"The Herrecater Swamp Site, Nantucket Island, Massachusetts", *Bulletin of the Massachusetts Archaeological Society* vol X no 4 (July 1949) 81-89

Bullen, Adelaide and Bullen, R.P.
*1945
"Black Lucy's Garden" *op. cit.* vol VI no 2 (January 1945) 17-28

Bulley, J.A.
1955
"The Beginnings of the Devonshire Ball-Clay Trade", *Reports and Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art* vol LXXXVII (1955) 191-204

Burgher, E.
*1940

"The Indian Site at Travis", Proceedings, Staten Island Institute of Arts and Sciences vol 9 pt 3 (October 1940-September 1941) 81-85

Burrows, H.R.
1931
The Housing Needs of Bristol in Relation to the Greenwood Act (compiled from paper read to the British Association (Economics Branch) meeting in Bristol 1930 and issued by the Bristol Branch of the Garden Cities and Town Planning Association). Bristol

Burt, E.
1754
Letters from a Gentleman in the North of Scotland to his Friend in London;..., 2 vols, 1874 ed introd. by R. Jamieson. Paterson, Edinburgh

Burton, J.H.
1897
A History of Scotland: from Agricola's Invasions to the Extinction of the last Jacobite Insurrection, new ed 1897, vol IV. Blackwood, Edinburgh and London

Butler, L.A.S.
*1964
"An Excavation in the Vicarage Garden, Conway, 1961", Archaeologia Cambrensis vol CXIII (1964) 94-128

Butt, J.
1971
"Working-Class Housing in Glasgow, 1851-1914", pp55-92 (Chapt II) in S.D. Chapman (ed) The History of Working-Class Housing: A Symposium. David and Charles, Newton Abbot

Butt, J., with Hume, J.R. and Donnachie, I.A.
1967
The Industrial Archaeology of Scotland. David and Charles, Newton Abbot

Calver, W.L.
*1931
"Historical Clay Pipes", The New-York Historical Society Bulletin vol XV no 3 (October 1931) 91-102

Calvorcoressi, D.
*1968
"European Traders on the Gold Coast", West African Archaeological Newsletter no 10 (1968) 16-19. Ibadan, Nigeria
*MS
"European Trade Pipes in Ghana", West African Journal of Archaeology future issue

Calvocoressi, D. (ed)
*1965

"West Africa", _COWA Surveys and Bibliographies_ Area 11 no III (1965)
*1969
"West Africa", _op_. _cit_. Area 11 no IV (1969)

Camp, Helen
1966a
"Progress Report on the Ancient Pemaquid Restoration", _Maine Archaeological Society Bulletin_ no 5 (April 1966) 15-20
1966b
"Two Skeletons uncovered at Pemaquid", _loc_. _cit_. 21
1966c
"1966 at Pemaquid", _op_. _cit_. no 6 (October 1966) 8-9
*1968
Pemaquid Lost and Found. Privately printed

Camp. M.F.
*1966
"White Clay Pipe Stem Fragments found at the Pemaquid Restoration - 1965", _Maine Archaeological Society Bulletin_ no 5 (April 1966) 22-24

Campbell, R.
*1747
The London Tradesman, 1969 reprint. David and Charles, Newton Abbot

Campbell, R.H.
1965
Scotland since 1707. Blackwell, Oxford

Candlin, L.N.
*1968
(Comment on D.R. Atkinson's "Sussex Pipes and Pipemakers: Further Notes" in _SN&Q_ vol XVII no 1), _Sussex Notes and Queries_ vol XVII no 2 (November 1968) 61

Cardew, M.
1969
Pioneer Pottery. Longmans _et_ _al_., London and Harlow

Carmichael, A.
*1967
"At the Ford of the Hazel Nuts" (first part), _The Scots Magazine_ vol 87 no 5 (n.s.) (August 1967) 408-16

Carr, E.H.
1961
What _is_ _History_?, 1964 ed. Penguin, Harmondsworth, Middlesex

Carrickfergus Castle, Northern Ireland
*1965
Manuscript catalogue of clay pipes held at Carrickfergus Castle sent by

Ministry of Finance, Ancient Monuments and Historic Buildings, Belfast, 5 May 1965 (photographs sent 15 April 1966)

Carter, J. (ed)
1961
A.E. Housman: Selected Prose. Cambridge University Press

Carter, P.
1969
"St Katharine Docks", *The London Archaeologist* vol 1 no 3 (Summer 1969) 51-56

Cartier, J. and Françoise
1968
"Etude géologique du Pays de Bray", *Bulletin no 1, Groupe de recherches et d'études de la céramique du Beauvaisis* (1968) 8 pages. Beauvais

Carus-Wilson, Eleanora M.
1933a
"The Iceland Trade", pp155-62 (Chapt IV) in Eileen Power and M.M. Postan (eds) *Studies in English Trade in the Fifteenth Century*. Routledge, London. (Reprinted 1954 as Chapt II in Eleanora M. Carus-Wilson (ed) *Medieval Merchant Venturers: Collected Studies*, Methuen, London)
1933b
"The Overseas Trade of Bristol", pp183-246 (Chapt V) in Eileen Power and M.M. Postan (eds) *op. cit.* (Reprinted 1954 as Chapt I in Eleanora M. Carus-Wilson (ed) *op. cit.*)

Carus-Wilson, Eleanor M. (ed)
1937
The Overseas Trade of Bristol in the Later Middle Ages (Bristol Record Society's Publications vol VII). Bristol

Cassidy, J.
*1895
"A Chapter on Pipes", *The Gentleman's Magazine* vol 279 (1895) 17-26. London

Castle, Dorothy; and Fielding, June
1968
"The Atlas of London: Problems in Compilation", *East London Papers* vol 11 no 2 (Winter 1968) 85-93

Catalogue général des livres imprimés de la Bibliothèque Nationale: Auteurs
1943
vol CLXIII. Imprimerie Nationale, Paris

Caywood, L.R.
*1955a
Final Report, Fort Vancouver Excavations. Department of The Interior, National Park Service, San Francisco
*1955b

Green Spring Plantation: Archeological Report. Virginia 350th Anniversary Commission, Yorktown

Caywood, L.R. and Butler, L.R.
*1954
Excavation at two Fort Okanogan Sites, 1952. Department of The Interior, National Park Service, San Francisco

Cell, Gillian T.
1969
English Enterprise in Newfoundland 1577-1660. University of Toronto Press

Celoria, F.C.S.
*1965
"Archaeological Finds from the Counties of London and Middlesex added to the Collections of the London Museum during 1962", Transactions of the London and Middlesex Archaeological Society vol 21 pt 2 (1965) 140-2
1973
"Ceramic Machinery of the 19th Century in the Potteries and in other Parts of Britain", Staffordshire Archaeology vol 2 (1973) 11-48

Celoria, F.C.S. and Kelly, J.M.
*1973
A Post-Medieval Pottery Site with a Kiln Base found off Albion Square, Hanley, Stoke-on-Trent, Staffordshire, England SJ 885 474 (City of Stoke-on-Trent Archaeological Society Report no 4). Hanley, Stoke-on-Trent

Census 1961: England and Wales; Index of Place Names L-Z
1965
HMSO, London

Cerveri, Doris
*1970
"The Cigar Store Indian - A Forgotten Man", The Western Collector vol VIII no 11 (November 1970) 4-8

Chadwick, G.F.
1973
"The Face of the Industrial City: Two Looks at Manchester", pp237-56 (Chapt 10) in H.J. Dyos and M. Wolff (eds) The Victorian City: Images and Realities, vol 1. Routledge and Kegan Paul, London

Chalkley, J.F.
*1955a
"A Critique and Rebuttal of the Paper 'Dating Stem Fragments of 17-18 Century Clay Tobacco Pipes' by J.C. Harrington", Quarterly Bulletin, Archeological Society of Virginia vol 9 no 4 (June 1955) 9 pages
*1955b
"Tobacco Pipe Stem Hole Sizing - Factors of Proof and Certitude", Bulletin of the Archaeological Society of Delaware vol VII no 1 (December 1955) 3-10
*1956

Clay Tobacco Pipes of St Fagans Castle: Study Report. Manuscript report, National Museum of Wales, St Fagans, Cardiff

Chambers, R.
1858
Domestic Annals of Scotland from the Reformation to the Revolution, 2 vols. Chambers, Edinburgh

Chance, H.
1967
"Records and the Nailsea Glassworks", The Connoisseur vol 165 no 665 (July 1967) 68-72

Chance, D.H. and Chance, Jennifer V.
*1974
Exploratory Excavations at Spalding Mission 1973. Laboratory of Anthropology, University of Idaho, Moscow

Chandler, G.
1957
Liverpool. Batsford, London

Chapelot, J. (ed)
*1972
L'Artisanat céramique en Saintonge (XIIIe-XIXe siècles): essai d'archéologie extensive terrestre et sub-aquatique, rapport préliminaire. Musée national des Arts et Traditions Populaires and the Ecole pratique des Hautes Etudes, VIéme Section, Paris

Chapelot, Odette and J.
*1972
Bref rapport sur l'état des recherches sur l'approvisionnement de la Louisiane en céramique venant de France au XVIIIe siècle. Manuscript report from authors.

Chapman, S.D.
1971
"Working-class Housing in Nottingham during the Industrial Revolution", pp133-63 (Chapt IV) in S.D. Chapman (ed) The History of Working-class Housing: A Symposium. David and Charles, Newton Abbot

Chapman, S.D. (ed)
1971
The History of Working-Class Housing: A Symposium. David and Charles, Newton Abbot. See also N.W. Beresford 1971; J. Butt 1971; S.D. Chapman 1971; S.D. Chapman and J.N. Bartlett 1971; J.H. Treble 1971; and A.S. Wohl 1971

Chapman, S.D. and Bartlett, J.N.
1971

"The Contribution of Building Clubs and Freehold Land Society to Working-class Housing in Birmingham", pp221-46 (Chapt VI) in S.D. Chapman (ed) op. cit.

Chapman, S.D., Chambers, J.D., and Sharpe, T.R.
1970
The Beginning of Industrial Britain. University Tutorial Press, London

Charbonnier, T.
1906
"Notes on North Devon Pottery of the Seventeenth, Eighteenth and Nineteenth Centuries", Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art vol XXXVIII (1906) 255-60

Charleston, R.J.
1954
"English Pottery and Porcelain", pp84-108 in Concise Encyclopaedia of Antiques vol I. Rainbird MacLean, London
1963
"Bristol & Sweden: Some Delftware Connexions", English Ceramic Circle Transactions vol 5 pt 4 (1963) 222-34 and pls 212-23

Cherry, J.
*1973
"Post-Medieval Britain in 1972", Post-Medieval Archaeology vol 7 (1973) 100-7

Christensen, Deanna M.
*1973
"Rediscovering Fort Pelly", The Beaver Outfit 304 no 1 (Summer 1973) 54-59. Winnipeg

Christophers, V.R. and Haselgrove, D.
1971
"The Fulham Pottery", The London Archaeologist vol 1 no 11 (Summer 1971) 255-8
1973
"The Fulham Pottery", op. cit. vol 2 no 5 (Winter 1973) 114-20

Christophers, V.R., Haselgrove, D.C., and Pearcey, O.H.J.
1974
The Fulham Pottery: A Preliminary Account (Occasional Paper 1, Fulham and Hammersmith Historical Society Archaeology Section). London

Christy, M.
*1907
"Tobacco Pipe-Making" in M. Christy (ed) "Industries", The Victoria History of the Counties of England: Essex volume II (1907) 413. Constable, London

Christy, M. (comp.)
1926
The Bryant and May Museum of Fire-Making Appliances: Catalogue of the Exhibits. Bryant and May, London
1928
The Bryant and May Museum of Fire-Making Appliances: Catalogue of the Exhibits: Supplement. Bryant and May, London

Clapham, J.H.
1926
An Economic History of Modern Britain: vol I The Early Railway Age, 1939 ed. Cambridge University Press

Clarke, J.M.
*1911
"Results of Excavations at the Site of the French 'Custom House', or 'General Wolfe's House', on Pennінsula Point in Gaspé Bay", *The Canadian Antiquarian and Numismatic Journal* vol VIII no 4 (3rd ser.) (October 1911) 146-69

Clarke, R.C.
1974
"Elvira", *Men Only* vol 39 no 3 [March 1974] 36-39. London

Clausen, C.J.
*1967
"A Preliminary Report on Excavations at the Site of the Camp of the Survivors and Salvagers of the Spanish Fleet of 1715", *The Conference on Historic Site Archaeology Papers 1965-1966* vol 1 (1967) 123-6
*1970
"The Fort Pierce Collection", *Bureau of Historic Sites and Properties Bulletin* no 1 (1970) 1-4, 12-13, 20-21. Tallahassee, Florida

Cleland, C.E.
*1971
"Smoking Pipes", pp86-88 (Chapt 10) in C.E. Cleland (ed) *The Lasanen Site: An Historic Burial Locality in Mackinac County, Michigan* (Publications of the Museum, Michigan State University, Anthropological Series vol 1 no 1). East Lansing
*1972
"The Matthews Site (20 CL 61), Clinton County, Michigan", *Michigan Archaeologist* vol 18 no 4 (December 1972) 175-207

Clifford, E.M.
*1964
"Hailes Church", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol LXXXII (1963) 208-9

Cloutier, J.-P.
*1974
"Quebec Ceramics/La céramique québecoise", *Canadian Antiques Collector* vol 9

no 3 (May-June 1974) 68-73 (pp68-70 are a bad translation into English).
Toronto

Coad, J.G.
1970
"Chatham Ropeyard", Post-Medieval Archaeology vol 3 (1969) 143-65
1973
"Two Early Attempts at Fire-Proofing in Royal Dockyards", op. cit. vol 7 (1973) 88-90

Cohn, M.
*1962
"Stuart and Hanover - Two Heraldic Pipes from Revolutionary War Sites in New York City", Pennsylvania Archaeologist vol XXXII no 3-4 (December 1962) 97-8

Colas, L.
*1959
"Les pipes de Montereau (XIXe siècle)", Bulletin folklorique de l'Ile-de-France XXIIe année 3e série no 8 (octobre-décembre 1959) 234-7
*1962
"Les pipes de Montereau au XIXe siècle", Revue des tabacs no 239 (automne 1962) 31-3. Paris

Cole, B.G.
*1892
"Dutch Tobacco Pipes", The Essex Naturalist vol VI no 11 (November 1892) 182-3

Coleman-Smith, R. and Pearson, T.
*1971
Donyatt Research Group 1970 Interim Report: Excavations at Donyatt and Nether Stowey. Privately printed

Coles, J. and Taylor, Joan
1971
"The Wessex Culture: A Minimal View", Antiquity vol XLV no 177 (March 1971) 6-14 and pls III-VIa

Coles, L.B.
1851
The Beauties and Deformities of Tobacco-Using:....Brown Taggart and Chace, Boston

Collard, Elizabeth
*1967
Nineteenth-Century Pottery and Porcelain in Canada. McGill University Press, Montreal

Combes, J.F.
*1964
Excavations at Spokane House-Fort Spokane Historic Site 1962-1963 (Washington State University Laboratory of Anthropology Report of Investigations no 29). Pullman

Connah, G.
*1975
The Archaeology of Benin: Excavations and other Researches in and around Benin City, Nigeria. Clarendon Press, Oxford

Cooke, A.
1907
Bristol Hovels: The Report of the Bristol Housing Reform Committee. Bristol Housing Reform Committee

Cooksey, A.J.A.
*1974
"Tobacco-Pipe Makers of Poole", Notes & Queries for Somerset and Dorset vol XXX pt 299 (March 1974) 28-30
*MS 1
The Clay Tobacco Pipe in the Poole Area. Manuscript from author
*MS 2
Clay Tobacco Pipes in the Priest's House Museum, Wimborne. Manuscript from author

Coolen, G.
*n.d.
"Les pipes de Saint-Omer", source unknown (clipping sent by City Archives, Saint-Omer, 19 April 1968)
*1970
"Le tabac et les pipes de Saint-Omer", Bulletin trimestriel de la société académique des antiquaires de la Morinie livraison 405 tome XXI (décembre 1970) 385-400. Saint-Omer
*1971
"Les pipes de Saint-Omer par Louis Fiolet", op. cit. livraison 406 tome XXI (mars 1971) 444-7. Saint-Omer

Cooper, T.P.
*1907
"The Story of the Tobacco Pipe", The Reliquary and Illustrated Archaeologist vol XIII (n.s.) (1907) 97-108. London

Cooper, W.D.
1862
Lists of Foreign Protestants and Aliens, resident in England 1618-1688: from Returns in the State Paper Office (Camden Society Publications vol LXXXII). London

Corti, E.C.
*1930

A History of Smoking, 1931 ed (translation by P. England of *Die trochene Trunkenheit*, Leipzig 1930). Harrap, London

Cossons, N.
1967
Industrial Monuments in the Mendip, South Cotswold and Bristol Region (Bristol Archaeological Research Group Field Guide no 4). Bristol

Cossons, N. and Hudson, K. (eds)
1971
Industrial Archaeologists' Guide 1971-73. David and Charles, Newton Abbot

Cotter, J.L.
*1958
Archeological Excavations at Jamestown, Virginia (Archeological Research Series Number Four, Department of The Interior, National Park Service). Washington

Cotter, J.L. and Hershey, W.D. (comp.)
*1973
"Recent Publications in Historical Archaeology", *Historical Archaeology* 1972 vol VI pp110-29

Cotton, Molly A.
*1962
"The Norman Bank at Colchester Castle", *Antiquaries' Journal* vol XLII pt I (1962) 57-61

Cotz, Jo Ann
1975
"A Study of Ten Houses in Paterson's Dublin Area", *Northeast Historical Archaeology* vol 4 no 1-2 (Spring 1975) 44-52. Rome, New York state

Cousley, S.A.
*1972
"Presidential Clay Pipes", *The Antiques Journal* vol 27 no 11 (November 1972) 24-26. Dubuque, Iowa

Courtney, T.W.
1974
"Excavations at the Royal Dockyard, Woolwich, 1972-1973: Part I", *Post-Medieval Archaeology* vol 8 (1974) 1-28

Cox, W.E.
1944
The Book of Pottery and Porcelain, 2 vols. Crown Publications, New York

Craig, R.
1962
"Some Aspects of the Trade and Shipping of the River Dee in the Eighteenth Century", *Transactions of the Historic Society of Lancashire and Cheshire*

vol 114 (1962) 99-128

Crawford, I.A.
1968
"The Divide between Medieval and Post-Medieval in Scotland", Post-Medieval Archaeology vol 1 (1967) 84-89

Crawford, O.G.S.
1953
Archaeology in the Field. Phoenix House, London

Cresthull, P.
*1969
"Styles of Detachable Stem Pipes", Maryland Archeology vol 5 no 2 (September 1969) 52-56
*1972
"Table and Graphs relating to the Harrington, Binford, and Hanson Tobacco Pipe Stem Data", The Conference on Historic Site Archaeology Papers 1971 vol 6 (1972) 258-63

Critchley, T.A. and James, Patricia D.
1971
The Maul and the Pear Tree: The Ratcliffe Highway Murders 1811. Constable, London

Croker, T.C.
*1835
"Ancient Tobacco Pipes", The Dublin Penny Journal vol IV no 160 (25 July 1835) 28-30

Cropper, T.
*1906
"Early Tobacco Clay Pipe Making at Buckley", The Cheshire Sheaf vol VI (3rd ser.) 16 May 1906 pp43-4

Cross, Dorothy
*1941
Archaeology of New Jersey, vol I. Archaeological Society of New Jersey, Trenton

Crossley, D.W.
1968a
"Glassmaking in Bagot's Park, Staffordshire, in the Sixteenth Century", Post-Medieval Archaeology vol 1 (1967) 44-83
1968b
Review of Industrial Archaeology (M. Rix) in ibid. 137-8
1972
"A Sixteenth-Century Wealden Blast Furnace: A Report on Excavations at Panningridge, Sussex, 1964-1970", op. cit. vol 6 (1972) 42-68

Crossley, D.W. and Aberg, F.A.
*1972
"Sixteenth-Century Glass-Making in Yorkshire: Excavations at Furnaces at Hutton and Rosedale, North Riding, 1968-1971", *ibib.* 107-59

Crossley, D.W. and Ashurst, D.
*1969
"Excavations at Rockley Smithies, a Water-Powered Bloomery of the Sixteenth and Seventeenth Centuries", *op. cit.* vol 2 (1968) 10-54

Crumley, Carole L.
*1973
The Kantzler Site (20 By 30): A Multi-Component Woodland Site in Bay County, Michigan (Michigan Archaeologist vol 19 no 3-4, September-December 1973)

Cullen, L.M.
1968
Anglo-Irish Trade 1660-1800. Manchester University Press
1969
"The Smuggling Trade in Ireland in the Eighteenth Century", *Proceedings of the Royal Irish Academy* vol 67 (C) (1969) 149-75

Cullen, T.
1965
Autumn of Terror, the Crimes and Times of Jack the Ripper, 1966 ed. Collins Fontana Books, London

Cummin, Hazel E.
1935
"Old Bristol Wares in American Cupboards", *Antiques* vol XXVII no 6 (June 1935) 223-5

Cumming, A.A.
1971
"Cookworthy's Plymouth and Bristol Porcelain", *The Connoisseur* vol 176 no 707 (January 1971) 10-15

Cummingham, W.
1897
Alien Immigrants to England. Swan Sonnenschein, London

Cunnington, B.H.
*1937
"Early Tobacco Pipe Maker", *Wiltshire Archaeological and Natural History Magazine* vol XLVII (1935-37) 542

Daaku, K.Y.
1970
Trade and Politics on the Gold Coast 1600-1720. Oxford University Press

DAE
1936-44
A Dictionary of American English on Historical Principles 4 vols, ed by W.A. Craigie and J. Hulbert. Oxford University Press

Dakin, G.F.
*1969
"Two Post-Medieval Industrial Structures at Thorpewood, Peterborough", Post-Medieval Archaeology vol 2 (1968) 164-6 and pl XIVA

Daniel, G.
1963
Editorial, Antiquity vol XXXVII no 148 (December 1963) 251-5

Daniell, J.A.
*1965
"The Making of Clay Pipes in Leicester", Transactions of Leicestershire Archaeological and Historical Society vol XL (1964-65) 59-62

Darlington, Ida, and Howgego, J.
1964
Printed Maps of London circa 1553-1850. Philip, London

Davidson, Ruth
*1957
"Tobacco, the Crop that saved a Colony", Antiques vol LXXXI no 1 (January 1957) 55-57

Davoud, Alison - see MacLean, Alison

Dawson, K.C.A.
*1969
Archaeological Investigations at the Site of the Longlac Historic Trading Post, Thunder Bay District, Ontario (Ontario Archaeology no 12, 1969)
*1970
"Preliminary Archaeological Investigations of Fort William in Northwestern Ontario", Historical Archaeology 1970 vol IV pp34-50

Deane, A.
*1914
"Objects connected with Tobacco, Smoking, etc.", Belfast Municipal Art Gallery and Museum: Quarterly Notes vol XXVI (September 1914) 1-12 (Publication no 44)

Deane, Phyllis
1965
The First Industrial Revolution. Cambridge University Press

Deetz, J.
*1960a

"Excavations at the Joseph Howland Site (C5), Rocky Nook, Kingston, Massachusetts, 1959: A Preliminary Report", *Supplement to the Howland Quarterly* vol XXIV no 2-3 (January 1960) 11 pages. North Smithfield, Rhode Island
*1960b
"The Howlands at Rocky Nook: An Archaeological and Historical Study", *op. cit.* vol XXIV no 4 (July 1960) 1-8

DeJarnette, D.L. and Hanson, A.T.
*1960
The Archeology of the Childersburg Site, Alabama (Notes in Anthropology no 4, Department of Anthropology, Florida State University). Tallahassee

Dempsey, H.A.
*1973
"A History of Rocky Mountain House", *Canadian Historic Sites: Occasional Papers in Archaeology and History* no 6 (1973) 7-53. Ottawa

Derry, T.K.
1965
A Short Economic History of Britain. Oxford University Press

Devine, T.M.
1971
"Transport Problems of Glasgow West India Merchants during the American War of Independence, 1775-83", *Transport History* vol 4 no 3 (November 1971) 266-72, 275-77, 281-304. Newton Abbot

Dickson, Sarah A.
*1954
Panacea or Precious Bane: Tobacco in Sixteenth Century Literature (Publication no 5, Arents Tobacco Collection). New York Public Library

Dictionnaire de l'Académie française
1932-35
8th ed, two vols of seven parts. Hachette, Paris

Dictionnaire encyclopédique Quillet
1968-70
8 vols. Quillet, Paris

Diderot, D. and Diderot, J.A.
*1751-72
Encyclopédie, ou dictionnaire raisonné..., 17 vols text and 11 vols illustrations. Vols 1-7 text and illustrations Braisson, Paris, vol 8-17 text Faulche, Neufchastel

Dienemann, W., Burre, O., *et al*
1928-29
Die Nutzbaren Gestine Deutchlands..., vol I 1928 and vol II 1929. Enke, Stuttgart

Ditchfield, D.H.
n.d.
The Story of the City Companies. Foulis, London

DNB
1890
Dictionary of National Biography, vol XXII, L. Stephen and S. Lee (eds). Smith Elder, London
1892
op. cit., vol XXXII, S. Lee (ed). Smith Elder, London

Dodd, A.E.
1964
Dictionary of Ceramics. Newnes, London

Donald, M.B.
1955
Elizabethan-Copper: the History of the Company of Mines Royal 1568-1605. Pergamon, London

Donnan, Elizabeth (ed)
*1930-35
Documents Illustrative of the History of the Slave Trade to America, 4 vols. Carnegie Institute of Washington publication 409 (reprinted 1965 by Octagon Books, New York)

Douch, H.L.
*1970
"Cornish Earthenware Potters", Journal of the Royal Institution of Cornwall vol VI pt 1 (n.s.) (1969) 33-64
*1971
"The Tobacco Trade and the Manufacture of Clay-Pipes in Cornwall", op. cit. vol VI pt 2 (n.s.) (1970) 139-53

Douwes, F.G.M.
*1964
"Oude toebackspijpes in Amsterdam", Ons Amsterdam (december 1964) 363-7

Doyle, A.C.
1893
"The Yellow Face", The Strand Magazine February 1893; republished in The Memoirs of Sherlock Holmes (Newnes, London 1894)

Drake, K.
1966
Simple Pottery. Studio Vista, London

Drewett, P.
*1974
"Excavations in Old Town Croydon, 1968/70: A Middle Saxon to Post-Medieval Occupation Sequence", *Research Volume of the Surrey Archaeological Society* no 1 (1974) 1-45

Duco, D.
*1974
Fifty Seventeenth Century Clay Pipes from the Collection of Don Düco. Privately published
Duhamel du Monceau, H.-L.
*1771
L'art de faire les pipes à fumer le tabac. Delatour, Paris

Dunbar, J.G.
*1965
"Excavations at Skirling Castle, Pebbleshire, 1962-3", *Proceedings of the Society of Antiquaries of Scotland* vol XCVI (1962-63) 237-46

Dunbar, J.G. and Hay, G.D.
*1963
"Excavations at Lour, Stobo, 1959-60", *op. cit.* vol XCIV (1960-61) 196-210

Dunhill, A.
*1924
The Pipe Book. Black, London (also re-issued with minor changes and new illustrations 1969 by Barker, London)

Dunhill, A.H.
*1954
The Gentle Art of Smoking, 1961 ed. Reinhardt, London

Dunn, Rebecca W.
*1973
"Smoke gets in their Eyes", *The Antiques Journal* vol 28 no 2 (February 1973) 31-33. Dubuque, Iowa

Durrenberger, E.P.
1965
"Anderson's Mill (41 TV 130): A Historic Site in Travis County, Texas", *Bulletin of the Texas Archeological Society* vol 36 (1965) 1-69

Dyos, H.J.
1954
"The Growth of a Pre-Victorian Suburb: South London, 1580-1836", *Town Planning Review* vol XXV no 1 (April 1954) 67-78. Liverpool
1955a
"Railways and Housing in Victorian London: I 'Attila in London'", *Journal of Transport History* vol II no 1 (May 1955) 11-21. Leicester
1955b
"Railways and Housing in Victorian London: II 'Rustic Townsmen'", *op. cit.*

vol II no 2 (November 1955) 90-100
1957
"Some Social Costs of Railway Building in London", op. cit. vol III no 2 (May 1967) 23-29
1961
Victorian Suburb: A Study of the Growth of Camberwell. Leicester University Press
1967
"The Slums of Victorian London", Victorian Studies vol XI no 1 (September 1967) 5-40. Bloomington, Indiana
1968
"Agenda for Urban Historians", pp1-46 in H.J. Dyos (ed) The Study of Urban History. Arnold, London

Dyos, H.J. (ed)
1968
The Study of Urban History. Arnold, London. See also A. Briggs 1968; H.J. Dyos 1968; F.M. Jones 1968; J.D. Marshall 1968; and D.A. Reeder 1968

Dyos, H.J. and Reeder, D.A.
1973
"Slums and Suburbs", pp359-86 (Chapt 15) in H.J. Dyos and M. Wolff (eds) The Victorian City: Images and Realities, vol 1. Routledge and Kegan Paul, London

Dyos, H.J. and Wolff, M. (eds)
1973
The Victorian City: Images and Realities, 2 vols. Routledge and Kegan Paul, London. See also G.F. Chadwick 1973; H.J. Dyos and D.A. Reeder 1973; B. Harrison 1973; P.J. Keating 1973; J. Kent 1973; E. Lampard 1973; D.E.H. Mole 1973; V.E. Neuburg 1973; G. Rosen 1973; R. Samuel 1973; and J. Simmons 1973

East London History Group
1968
"The Population of Stepney in the Early Seventeenth Century", East London Papers vol 11 no 2 (Winter 1968) 74-84

Eaton, J.
*1962
"Pipe Stem Dating and the Date for Silver Bluff, S.C.", Florida Anthropologist vol XV no 2 (June 1962) 57-62

Eckholm, E. and Deetz, J.
1971
"Wellfleet Tavern", Natural History vol LXXX no 7 (August-September 1971) 48-57. Museum of Natural History, New York

Edings, C.A.
*1931
"The Thornton Wills Collection of Tobacco Pipes", The Connoisseur vol

LXXXVII no 356 (April 1931) 230-4 and 237 (reprinted as "An Interesting Collection of Artistic Tobacco Pipes" in *Wills's Works Magazine* vol 6 no 44 (February 1933) 144-51 and vol 6 no 45 (May 1933) 191, 203, 207 with three additional illustrations)

Edmonds, E.A., McKeown, M.C., and Williams, M.
1969
British Regional Geology: South-West England (3rd ed 1969). HMSO, London

Edwards, D.W.
1927
Bristol City Mission Centenary, 1827-1927. Partridge and Love, Bristol and London

Edwards, Rhoda
1973
Lambeth Stoneware: The Woolley Collection including Boulton Ware and Products of other British Potteries. Borough of Lambeth, London
1974
London Potters circa 1570-1710 (Journal of Ceramic History no 6). Stafford

Elliot, Grace A. and Thompson, T.D.
*1970
"Coldingham Priory Excavations - 11", *History of the Berwickshire Naturalists' Club* vol XXXVIII pt 2 (1969) 95-102

Elliott, J.
*1972
"Tobacco Pipes among the Hivernant Hide Hunters: A.D. 1860-1882", *The Western Canadian Journal of Anthropology* vol III no 1 (1972) 146-56. Edmonton, Alberta

Enc. Brit.
*1875-89 (9th ed)
Encyclopaedia Britannica, article "Pipe, Tobacco" vol XIX pp110-2
*1911 (11th ed)
op. cit., article "Tobacco Pipe" vol XXI pp633-5
*1960 ed
op. cit., articles "China Clay (Kaolin)" vol 5 pp553-4; "Cigar" and "Cigarette" vol 5 pp702-5; "Meerschaum" vol 15 p.212; "Pipe Smoking" vol 17 pp947-8; "Snuff" vol 20 p.857; "Tobacco" and "Tobacco Pipe" vol 22 pp260-4
*1966 ed
op. cit., articles "Cigar" and "Cigarette" vol 5 pp766-9

Ernould-Gandouet, Marielle
1969
La céramique en France au XIXe siècle. Gründ, Paris

Evans, G.
*1921
The Old Snuff House of Fribourg and Treye....1720-1920. Macbeth, London

Evans, G.E.
1956
Ask the Fellows Who Cut the Hay, 1965 rev. ed. Faber and Faber, London
1960
The Horse in the Furrow, 1967 ed. Faber and Faber, London
1966
The Pattern under the Plough: Aspects of the Folk-Life of East Anglia, 1971 ed. Faber and Faber, London
1969
The Farm and the Village, 1974 ed. Faber and Faber, London
1970
Where Beards Wag All: The Relevance of Oral Tradition. Faber and Faber, London
1975
The Days That We Have Seen. Faber and Faber, London

Evans, J.
1824
Chronological Outline of the History of Bristol. Privately printed

Evans, Joan
1961
"Anniversary Address", Antiquaries' Journal vol XLI no 304 (July-October 1961) 149-53

Eversley, D.E.C.
1972
"The Docklands - An Exercise in Geopolitics", East London Papers vol 14 no 1 (April 1972) 51-64

Ewes, S.D'
1682
The Journals of all the Parliaments during the Reign of Queen Elizabeth..., collected by Sir S. D'Ewes and rev. and pub. by P. Bowes. Mitre, London

Examiner
*1850
"Letters on the Condition of the Working-Classes of Bristol and its Vicinity", a series of at least 11 weekly articles in the Bristol Examiner starting 17 August 1850 and reprinted as separate pamphlets a week later (bound copy in Bristol Public Library defective, letters IV and VIII being missing - letters V and IX are misnumbered IV and VIII)

Eyre-Todd, G.
1934
History of Glasgow, vol III. Jackson, Glasgow

Fairbairn, A.
*1927
"Notes on Excavations of Prehistoric and Later Sites at Muirkirk, 1913-27", *Proceedings of the Society of Antiquaries of Scotland* vol LXI (1926-27) 269-89

Fairbanks, C.H.
*1952
"Creek and Pre-Creek", pp285-300 and fig 161 in J.B. Griffin (ed) *Archeology of Eastern United States*. University of Chicago Press
*1964
"Underwater Archaeology Sites in St Marks River", *Florida Anthropologist* vol XVII no 2 (June 1964) (Papers presented at the 3rd and 4th Conferences on Historic Site Archaeology) 44-49
*1974
"The Kingsley Slave Cabins in Duval County, Florida, 1968", *The Conference on Historic Site Archaeology Papers 1972* vol 7 (1974) 62-93

Fairholt, F.W.
*1859
Tobacco: Its History and Associations:.... Chapman and Hall, London

Fairhurst, H.
1969
"Rosal: A Deserted Township in Strath Naver, Sutherland", *Proceedings of the Society of Antiquaries of Scotland* vol 100 (1967-68) 135-69 and pls 10-15
1971
"The Deserted Settlement at Lix, West Perthshire", *op. cit.* vol 101 (1968-69) 160-99 and pls 19-24

Farson, D.
1972
Jack the Ripper, 1973 rev ed. Sphere Books, London

Fenenga, F.
*1947
"Artifacts from Excavation of Sutter's Sawmill", *California Gold Discovery Centennial Papers on the Time, the Site and Artifacts*, pp54-6. San Francisco Historical Society

Ferguson, Linda L.
*1975a
"Old San Juan Town: Artifact Summary 1972 Season, San Juan Island, Washington", pp135-74 in *Miscellaneous San Juan Island Reports 1971-1973*. Laboratory of Anthropology, University of Idaho, Moscow
*1975b
"HBC Bellevue Farm: Artifact Summary 1973 Season, San Juan Island, Washington", pp175-221 in *op. cit.*

Fitting, J.E.
*1965
Late Woodland Cultures of Southeastern Michigan (Anthropological Papers, Museum of Anthropology, University of Michigan, no 24). Ann Arbor

Fitton, R.S. and Wadsworth, A.P.
1958
The Strutts and the Arkwrights 1758-1830: A Study of the Factory System. Manchester University Press

Fitzgerald, E.
*1855
"On Accoustic Vases and other Relics discovered in Restorations lately made in the Church of St Mary, Youghal", _Proceedings and Transactions of the Kilkenny and South-East of Ireland Archaeological Society_ vol III pt II (1855) 303-10

Fladmark, K.R.
*1973
"The Richardson Ranch Site: A 19th Century Haida House", pp53-95 in R.M. Getty and K.R. Fladmark (eds) _Historical Archaeology in Northwestern North America_. Archaeological Association, University of Calgary, Alberta

Flegel, P.S.
*1964
"The Hunting Creek Midden", _The Archeolog_ vol 16 no 2 (1964) 1-12. Seaford, Delaware

Fleming, J.A.
*1913
"An Old Glasgow Industry", _Old Glasgow Club Transactions_ vol II (1909-13) 310-4
*1923
Scottish Pottery. Maclehose Jackson, Glasgow

Flemming, D.
1971
A History of the Town of Niagara-on-the-Lake (1791-1970). (Manuscript Report No 25, National Historic Parks and Sites Branch, Parks Canada, Ottawa

Flinn, M.W.
1963
An Economic and Social History of Britain since 1700. MacMillan, London

Flinn, M.W. (ed)
1964
Readings in Economic and Social History. Macmillan, London

Folan, W.J. and Ingram, G.C.
*1973

"Gateway to Upper Canada: The Fort at Coteau du Lac", Archaeology vol 26 no 3 (July 1973) 188-97. New York

Foley, V.P.
1968
"On the Meaning of Industrial Archaeology", Historical Archaeology 1968 vol II, pp66-68
1969
"Reply to Vogel", op. cit. 1969 vol III, pp93-94

Fontana, B.L.
*1968
["President Pipes" from Arizona], The Chesopican vol 6 no 6 (December 1968) 161-2. Norfolk, Virginia

Fontana, B.L. and Greenleaf, J.C., with the collaboration of Ferguson, C.W., Wright, R.A., and Frederick, Doris
*1962
Johnny Ward's Ranch: A Study in Historic Archaeology (The Kiva vol 28 no 1-2, October-November 1962). Tucson

Forma, G.
*1972
Michipicoten Archaeology 1971. Parks and Recreation Areas, Ontario Department of Lands and Forests, Toronto

Forster, W.A. and Higgs, K.B.
1973
"The Kennemerland, 1971: An Interim Report", The International Journal of Nautical Archaeology and Underwater Exploration vol 2 no 2 (September 1973) 291-300

Forsyth, G.A.
*1900
The Story of the Soldier. Appleton, New York

Fournier, L.A. and Clark, Mary M.
*1973
"Snuff Stuff", The Federation of Historical Bottle Clubs Journal vol 1 no 2 (November 1973) 15-31. Poway, California

Fowler, P.J.
1969
"Fyfield Down 1959-68", Current Archaeology no 16 (vol II no 5) (September 1969) 124-9. London

Fowler, P.J. and Walthew, C.V. (eds)
1972
"Archaeology and the M5 Motorway", Transactions of the Bristol and Gloucestershire Archaeological Society vol XC (1971) 22-63

Fowler, W.S.
*1955
"Hammersmith Chronology at Saugus", *Bulletin of the Massachusetts Archaeological Society* vol 16 no 3 (April 1955) 41-47
*1965
"Chronology of Some Kaolin Pipe Types", *op. cit.* vol 27 no 1 (October 1965) 14-17

Fox, J.W.
*1972
"Dating Kaolin Tobacco Pipes from Indian Island", *Man in the Northeast* no 3 (Spring 1972) 20-35. Fitzwilliam, New Hampshire

Foy Society Survey Group
1967
A Survey of Unitarian Congregations in Britain. General Assembly of Unitarian and Free Christian Churches, London

Franklin, A.
*1906
Dictionnaire historique des arts, métiers et professions exercés dans Paris depuis le treizième siècle. Welter, Paris and Leipzig

Frazer, E.W.
*1903
"Old Tobacco Pipes", *Home Counties Magazine* vol 5 (1903) 238-9. London

Freeman, T.W.
1957
Pre-Famine Ireland: A Study in Historical Geography. Manchester University Press

Fresco-Corbu, R.
*1960
"The Era of the Meerschaum Pipe", *Country Life* vol CXXVIII no 3323 10 November 1960 pp1100-1
*1962
"Faces on French Clay Pipes", *op. cit.* vol CXXXI no 3406 14 June 1962 pp1445-6
*1963
"The Art of the German Porcelain Pipe", *op. cit.* vol CXXXIII no 3433 28 February 1963 pp424-5
*1964
"The Rise and Fall of the Clay Pipe", *op. cit.* vol CXXXV no 3507 21 May 1964 pp1286-89
*1967
"Pipes for the Military Historian", *op. cit.* vol CXLI no 3666 8 June 1967 pp1474 and 1477
*1968
"The Many Faces of the Wooden Pipe", *op. cit.* vol CXLIV no 3735 3 October 1968 pp846-50

Friederich, F.H.W.
*1964a
"Pijpelogie" part I, *Westerheem* vol XIII no 1 (februari 1964) 8-12
*1964b
"Pijpelogie" part II, *op. cit.* vol XIII no 2 (april 1964) 38-41
*1964c
"Pijpelogie" part III, *op. cit.* vol XIII no 3 (juni 1964) 58-64
*1964d
"Pijpekoppen", *Fibula* vol 5 no 1 (Januari-maart 1964) 2-7
*1970
"Pijpelogie" part IV, *Westerheem* vol XIX no 4 (augustus 1970) 160-73
*1972
"Pijpelogie" part V, *op. cit.* vol XXI no 2 (1972) 79-83

Fries, R.I.
1975
"European vs. American Engineering: Pierre Charles L'Enfant and the Water Power System of Paterson, N.J.", *Northeast Historical Archaeology* vol 4 no 1-2 (Spring 1975) 68-96. Rome, New York state

Fuess, G.M.
*1930
article "Timothy Dexter" in the *Dictionary of American Biography* vol V pp281-2. Scribner, New York

Fyfe, P.
1918
"A Tour in the Calton", *Old Glasgow Club Transactions* vol 3 (1913-18) 267-80

Gadd, D.
1971
Georgian Summer; Bath in the Eighteenth Century. Adams and Dart, Bath

Gall, Patricia L.
*1967
"The Excavation of Fort Pic, Ontario", *Ontario Archaeology* publication no 10 (June 1967) 35-63

Gant, L.H.
*1958
"Clay Pipes found at Colchester", *Colchester Archaeological Group Quarterly Bulletin* vol I no 3 (September 1958) 31-33
*1959a
"Clay Tobacco Pipe Makers - A Colchester Chronology", *op. cit.* vol II no 1 (March 1959) 3-4
*1959b
"Clay Tobacco Pipes", *op. cit.* vol II no 2 (June 1959) 12
*1959c
[Identification of clay pipes], p.18 in Anonymous "Kiln at Roman River" *ibid.* 17-22

*1960
[Note on a display of and lecture on pipe material including fragments from a kiln given by LHG], p.19 in Anonymous "Weekly Meetings" op. cit. vol III no 1 (March 1960) 17-20
*1961a
"St Peter's, Colchester - New Vicarage Site", op. cit. vol IV no 2 (June 1961) 16
*1961b
"The Clay Pipes", pp49-51 in B.P. Blake, J.G. Hurst, and L.H. Gant "Medieval and Later Pottery from Stockwell Street, Colchester", Transactions of the Essex Archaeological Society vol I pt I (3rd ser.) (1961) 41-51
*1963
"The White Hart Inn, Colchester", Colchester Archaeological Group Quarterly Bulletin vol VI no 2 (June 1963) 21-2
*1964
[Pipes found at the "Prince of Wales", Colchester and in The Square, Great Yarmouth], op. cit. vol VII no 2 (June 1964) 19
*1967a
"The Clay Tobacco Pipes from St Mary's Rectory", op. cit. vol 10 no 1 (March 1967) 13-14
*1967b
"'The Oldest Leaf Tobacco in the World'", op. cit. vol 10 no 2 (June 1967) 26-7

Gardiner, S.R.
1893 ed
History of the Great Civil War 1642-1649, 4 vols. Longmans, London (1965 reprint Ams Press, New York)
The Ams Press reprint of 1965 is a photo-mechanical reproduction in which the Ams Press imprint has been superimposed over the name of the original publisher, place of publication, and date of publication, so that this information is no longer available. The number of volumes and the evidence of the preface indicates the reprint is not of the 1st ed but is probably the 2nd ed, hence the 1893 date cited here.

Gardner, M.
1975
"Mathematical Games", Scientific American vol 233 no 3 (September 1975) 174-6, 179-80

Garrett, W.D.
*1968
"Paraphernalia of Smokers and Snuffers", Antiques vol XCIII no 1 (January 1968) 104-8

Garth, T.R.
*1952
"Archaeological Excavations at Fort Walla Walla", The Pacific Northwest

Quarterly vol 43 no 1 (January 1952) 27-50. Seattle

George, M. Dorothy
1925
London Life in the Eighteenth Century, 1966 ed. Penguin, Harmondsworth, Middlesex

Geselschap, J.E.L.
*n.d.
Goudse pijpmerken 1724-1881. Gouda Archives (1972?)

Gibson, A.V.B.
1958
"Huguenot Weavers' Houses in Spitalfields", East London Papers vol 1 no 1 (April 1958) 3-14

Gibson, E.P., Peru, D., and Herrick, Ruth
*1960
"The de Marsac Trading Post Site", Michigan Archaeologist vol 6 no 3 (September 1960) 42-53

Gifford, S.
*1940
"Tobacco Pipes found at Fort Ticonderoga", Bulletin of the Fort Ticonderoga Museum vol V no 4 (January 1940) 120-33

Gilbert, J.L.
*1958
"Kew Palace Pipes", Journal of the Kew Guild vol 7 (1958) 555-6. London

Gilboy, Elizabeth W.
1936
"The Cost of Living and Real Wages in Eighteenth Century England", Review of Economic Statistics vol XVIII (1936) 134-43. Cambridge, Massachusetts

Gillingham, H.E.
*1938
[Letter regarding Hopkins's article on TD pipes in Antiques vol XXXII no 2], Antiques vol XXXIII no 2 (February 1938) 106

Glass, D.V. (ed)
1966
London Inhabitants within the Walls 1695 (London Record Society vol 2). London

Godet, A.
*1898
"Les pipes du XVIIe et du XVIIIe siècle", Indicateur d'histoire et d'antiquité suisse vol XXXI (1898) 129-35. Zürich

Gommer, E.C.K.
1914
"The Population of England in the Eighteenth Century", *Journal of the Royal Statistical Society* vol LXXVI (1913-14) 261-303. London

Good, J.M., Gregory, O., and Bosworth, N.
*1813
Pantalogia - A New Encyclopaedia..., article "Pipes (Tobacco)". Kearsley, London

Good, Mary E
*1972
Guebert Site: An 18th Century Historic Kaskaskia Indian Village in Randolph County, Illinois (Memoir II, The Central States Archaeological Societies Inc). Place of publication not given

Gooder, Eileen; Woodfield, Charmian; and Chaplin, R.E.
*1964
"The Walls of Coventry", *Birmingham Archaeological Society Proceedings and Transactions* vol 81 (1963-64) 88-138

Gorgon
*1819
extracts from no 37 (6 February 1819) 302-4; no 39 (13 February 1819) 312; no 44 (20 March 1819) 348-9. London.

Gotto, C.W.
*1955
"Clay Tobacco Pipes", *Report of the Marlborough College Natural History Society* no 96 (1947-55) 24-25. Marlborough, Wiltshire

Grabert, G.F.
*1968
The Astor Fort Okanogan (University of Washington Department of Anthropology Reports in Archaeology no 2). Seattle

Graham, A.
1965
"Archaeology of a Great Post Road", *Proceedings of the Society of Antiquaries of Scotland* vol XCVI (1962-63) 318-47

Grange, R.T. jr
*1971
Excavations at Castle Hill, Newfoundland (Manuscript Report no 46, National Historic Parks and Sites Branch, Parks Canada. Ottawa

Grant, Isobel F.
1961
Highland Folk Ways. Routledge and Kegan Paul, London

Grant-Davidson, W.J. and Kemp R.
*1967
"Excavations at Caughley", *English Ceramic Circle Transactions* vol 6 pt 3 (1967) 268-83

Graves, C.
*1969
A Pipe Smoker's Guide. Icon Books, London

Green, C.
*1973a
"When Portchester had its own Clay Pipe Industry", *News* 7 November 1973 p.6. Portsmouth
*1973b
"Not just a Pipe-Dream", *op. cit.* 29 November 1973 p.8

Green, E.M.
*1969
A Preliminary Report on Clay Pipe Manufacture in Detroit in the Late 19th Century. Manuscript from author

Green, J.N.
*1973
"The Wreck of the Dutch East Indiaman the *Vergulde Draeck*, 1656", *The International Journal of Nautical Archaeology and Underwater Exploration* vol 2 no 2 (September 1973) 267-89

Greene, H. (ed)
1970
The Rivals of Sherlock Holmes, 1971 ed. Penguin, Harmondsworth, England
1973
Further Rivals of Sherlock Holmes: The Crooked Counties, 1976 ed. Penguin, Harmondsworth, England

Greenman, E.F.
*1958
"The Compleat Smoker", *Michigan Archaeologist* vol 4 no 3 (September 1958) 63-68

Gregor, W.
1874
An Echo of the Olden Time from the North of Scotland. Menzies, Edinburgh and Glasgow; and Scott, Peterhead. (Reprinted by Norwood Editions, place of publication not given, 1973)

Le grenier du collectionneur
*1972
Catalogue no 17 (1972), *Le grenier du collectionneur*, booksellers and antique-dealers, Brussels, Belgium

Griffiths, T. and Wedgwood, H.C.
1970
"A Mission for Mr Wedgwood", *American Heritage* vol XXI no 5 (August 1970) 64-67. New York

Grimm, J.L.
1972
"Hanna's Town", *Carnegie Magazine* vol XLVI no 6 (June 1972) 225-35. Pittsburgh

Grimm, J. and W.
1854-1954
Deutches Wörterbuch, 16 vols in 32 parts. Hirzel, Leipzig

Gurlt, E. and Wernich, A.
1934
Biographisches Lexikon der hervorragenden Ärzte aller zeiten und Völker, vol 5, 1962 ed. Urban and Schwarzenberg, Munich

Hackenbroch, Yvonne
1954
"Continental Porcelain", pp109-19 in *Concise Encyclopaedia of Antiques* vol I. Rainbird MacLean, London

Hagerty, G.
*1969
Kaolin Pipes from Oneida Sites. Manuscript report from author

Haggar, R.G. (ed)
1960
The Concise Encyclopaedia of Continental Pottery and Porcelain. Deutch, London

Hague, D.B.
*1961
"Not for Joseph", *The Lady* 11 May 1961 pp733-4. London

Hall, J.M.
1972
"East London's Future: Visiions Past and Present", *East London Papers* vol 14 no 1 (April 1972) 5-24

Hall, P.G.
1960
"The Location of the Clothing Trade in London, 1861-1951", *Transactions and Papers, Institute of British Geographers*, publication no 28 (1960) 155-78
1962
"The East London Footwear Industry: An Industrial Quarter in Decline", *East London Papers* vol 5 no 1 (April 1962) 3-21

Hall, T.M.
*1890

"On Barum Tobacco Pipes, and North Devon Clays", Devonshire Association for the Advancement of Science, Literature, and Art, Reports and Transactions vol XXII (1890) 317-23

Haller, A. von
1788
Bibliothecae medicinae practicae..., vol IV. Haller, Berne; and Schweighauser, Basel

Hallgarth, W.E.R.
*1962
"Pipes of Clay", Lincolnshire Life (Spring 1962) 32-3
*1969
"The Market Rasen Pipe Maker", op. cit. (February 1969) 32-34

Hamilton, H.
1926
The English Brass and Copper Industry until 1800, 1967 ed. Cass reprint, London
1932
The Industrial Revolution in Scotland, 1966 ed. Cass reprint, London
1963
An Economic History of Scotland in the Eighteenth Century. Clarendon Press, Oxford

Hamilton, H.W. and Hamilton, Jean T.
*1972
"Clay Pipes from Pamplin", The Missouri Archaeologist vol 34 no 1-2 (December 1972) 1-47

Hanson, L.H. jr
*1968
The Excavation of the New Ordnance Storehouse at Louisbourg (Manuscript Report no 54, National Historic Parks and Sites Branch, Parks Canada). Ottawa
*1971a
"Kaolin Pipe Stems - Boring in on a Fallacy", The Conference on Historic Site Archaeology Papers 1969 vol 4 (1971) 2-15
*1971b
"Pipes from Rome, New York", Historical Archaeology 1971 vol V pp92-99
*1972
"A Few Cents More", The Conference on Historic Site Archaeology Papers 1971 vol 6 (1972) pp254-7

Hanson, L.H. jr and Shott, G.C.
*1968
Excavations in an Early 18th Century Garden Pool at Louisbourg (Manuscript Report no 56, National Historic Parks and Sites Branch, Parks Canada). Ottawa

Harley, L.S.
*1963
The Clay Tobacco-Pipe in Britain: With Special Reference to Essex and East Anglia (Essex Field Club Special Memoirs vol VIII). Stratford, Essex
*1964
"Some Additional Records of Tobacco-pipe Makers in Essex and E. Anglia", Essex Naturalist vol 31 pt 3 (1964) 213-4

Harper, J.R.
*1956
Portland Point: Crossroads of New Brunswick History: Preliminary Report of the 1955 Excavation (Historical Studies no 9, Publications of the New Brunswick Museum). Saint John
*1957
"Four Thousand Years of History: the Story of Archaeological Excavation at Portland Point", Atlantic Advocate vol 47 no 6 (February 1957) 31-35. Fredricton, New Brunswick
*1960
"In Quest of Lord Baltimore's House at Ferryland", Canadian Geographical Journal (September 1960) 106-13

Harper, J.R. and Triggs, S. (eds)
1967
Portrait of a Period: A Collection of Notman Photographs 1856-1915. McGill University Press, Montreal

Harrington, J.C.
*1951
"Tobacco Pipes from Jamestown", Quarterly Bulletin, Archaeological Society of Virginia vol 5 no 4 (June 1951) 7 pages
1952
"Historic Site Archeology in the United States", pp335-44 and figs 185-96 in J.B. Griffin (ed) Archeology of Eastern United States. University of Chicago Press
*1953
"Dating Trade Pipes - Some 'Cans' and 'Can'ts'", Eastern States Archeological Federation Bulletin no 12 (1953) 8
*1954
"Dating Stem Fragments of Seventeenth and Eighteenth Century Clay Tobacco Pipes", Quarterly Bulletin, Archeological Society of Virginia vol 9 no 1 (September 1954) 5 pages
*1955a
"A Comment on 'A Critique and Rebuttal of the Paper Dating Stem Fragments of 17-18 Century Clay Tobacco Pipes' by John F. Chalkley", op. cit. vol 9 no 4 (June 1955) 2 pages
1955b
"Archeology as an Auxiliary Science to American History", American Anthropologist vol 57 no 6 (December 1955) 121-30

Harris, D.A.
*1955
"A French Colonial Well: Its Construction, Excavation and Contents", The Conference on Historic Site Archaeology Papers 1970 vol 5 pt 1 (1971) 51-80

Harrison, B.
1973
"Pubs", pp161-70 (Chapt 6) in H.J. Dyos and M. Wolff (eds) The Victorian City: Images and Realities vol 1. Routledge and Kegan Paul, London

Harrison, M.
1958
In the Footsteps of Sherlock Holmes, 1971 ed. David and Charles, Newton Abbot

Hay, G.D.
1974
"Houldsworth's Cotton Mill, Glasgow", Post-Medieval Archaeology vol 8 (1974) 92-100

Hayes, R.H.
*1970
"The Glasshouse at Scudale (Rosedale West)", Rydale History vol 5 (1970) 26-35

Hay, T.R. and Jelks, E.B.
*1966
Archeological Exploration at Fort Lancaster, 1966: A Preliminary Report (State Building Commission Archeological Program, Texas, Report no 4). Houston

HBRS vol LX
*1946
Minutes of the Hudson's Bay Company 1679-1684, Second Part 1682-84, ed by E.E. Rich and introduction by G.N. Clark (Hudson's Bay Record Society vol LX). London

Heal, A.
1925
London Tradesmen's Cards of the XVIII Century: An Account of their Origin and Use. Batsford, London
*1947
The Signboards of Old London Shops. Batsford, London

Hebert, L. (ed)
*1850
The Engineer's and Mechanic's Encyclopaedia,....., new ed 2 vols, Vol II (1850) article "Tobacco-pipes". Kelly, London

Heide, G.D. van der
*1955

"Archaeological Investigations on New Land: The Excavation of Wrecked Ships in the Zuider Zee Territory", *Antiquity and Survival* vol 1 no 3 (1955) 221-52. 's Gravenhage

Heighton, R.F. and Deagan, Kathleen A.
*1972
"A New Formula for Dating Kaolin Clay Pipestems", *The Conference on Historic Site Archaeology Papers 1971* vol 6 (1972) 220-9

Heimann, R.K.
*1960
Tobacco and Americans. McGraw-Hill, New York

Heite, E.F.
*1970a
"Pipe Indistry reflected in Tools", *Quarterly Bulletin, Archeological Society of Virginia* vol 24 no 2 (December 1969) 118-9 and cover illustration
*1970b
"An Eighteenth-Century Reed-Stem Pipe from Lancaster County", *op. cit.* vol 24 no 4 (June 1970) 226 and cover illustration
*1970c
"A Collection of Eighteenth-Century Artifacts from Gaines Point, Gloucester County, Virginia", *op. cit.* vol 25 no 1 (September 1970) 49-60
*1971
"Pipes from the Pamplin Factory in Appomattox County, Virginia", *op. cit.* vol 25 no 3 (March 1971) 195-6
*1972a
"A Collection of Pamplin Pipes at Appomattox Old Courthouse", *op. cit.* vol 26 no 4 (June 1972) 211-2
*1972b
"American-Made Pipes from the Camden Site", *op. cit.* vol 27 no 4 (December 1972) 94-99
*1973a
"A Seventeenth-Century Trash Dump in Northampton County, Virginia", *op. cit.* vol 28 no 2 (December 1973) 80-86
*1973b
"Tests at the Eppes Store Site, Chesterfield County, Virginia", *ibid.* 90-93

Heite, E.F. and Batte, R.B.
*1968
"Eppes Island Site, Charles City County, Va", *op. cit.* vol 23 no 1 (September 1968) 39-49

Helbers, G.C.
*1947
"Ons Vorstenhuis en de Goudsche pijpmakers", *De Nederlandsche Leeuw* LXIVe jaargang no 3 (maart 1947) cols 90-3. The Hague

Helbers, G.C. and Goedewaagen, D.A.
*1942

Goudsche pijpen (Monographiae Nicotianae Band 4). Uitgevers-Mij Atlantic, Amsterdam

Heldman, D.P.
*1973
Archaeological Investigations of Fort Toulouse: 1972-73. Alabama Historical Commission and the National Park Service, Department of The Interior, place of publication not given

Hendrickx, P.
*1963
"De pijp door de eeuwen heen" *Ons Heem* vol XVII no 5 (bloeimaand 1963) 149-63. Antwerp

Herford, C.H. and Simpson, P. (eds)
1925
ben Jonson, vol I. Clarendon Press, Oxford

Herford, C.H., Simpson, P., and Simpson, Evelyn (eds)
*1950
Ben Jonson, vol X. Clarendon Press, Oxford

Herment, G.
*1952
Traité de la pipe, 1965 ed. Denoël, Paris
*1954
The Pipe (translation by A.L. Hayward of *Traité de la pipe* - see above), 1963 ed. Simon and Schuster (Essandess Paperbacks), New York

Hermessen, F.W.
*1926
"Old English Clay Pipes", *Discovery* vol VII (Setember 1926) 324-5. London

Herndon, N.
*1957
Tobacco in Colonial Virginia: "The Sovereign Remedy" (Virginia 350th Anniversary Celebrations Corporation). Williamsburg

Herrick, Ruth
*1958
"A Report on the Ada Site, Kent County, Michigan", *Michigan Archaeologist* vol 4 no 1 (March 1958) 1-27

Hervieu, M.
*1951
"La pipe à terre, sa grandeur et sa décadence", *Revue des tabacs* no 196 (Noël 1951) 34-36. Paris

Hewitt, ---
*1869
[Account of the discovery of clay pipes at Lichfield] *The Archaeological*

Journal vol XXVI (1869) 280 and 284-5

Higgs, C.D.
*1942
"Spanish Contacts with the Ais (Indian River) Country", Florida Historical Quarterly vol 29 no 1 (1942) 25-39

Higley, D.E . (comp.)
1975
Mineral Dossier No 11: Ball Clay. HMSO, London

Hill, C.
1958
Puritanism and Revolution, 1968 ed. Panther, London
1964
Society and Puritanism in Pre-Revolutionary England, 1969 ed. Panther, London
1965
Intellectual Origins of the English Revolution, 1972 ed. Panther, London

Hill, G.W. and Frere W.H. (eds)
1891
Memorials of Stepney Parish; that is to say, The Vestry Minutes from 1599 to 1662.... Billing, Guildford

Hill, R.
*1955
The Tobacco Pipe Makers of York. Manuscript, Castle Museum, York
*1964
Information on...Clay Tobacco-Pipe Makers...from the Edinburgh and Leith Area and Notes on Clay Tobacco Pipes collected at Christie's Works, Leith. Manuscripts, Edinburgh Corporation Libraries and Museums Department
Hobley, B. and Lambert, M.W.
*1971
"Excavations at the Cathedral and Benedictine Priory of St Mary, Coventry", Birmingham and Warwickshire Archaeological Society Transactions vol 84 (1967-70) 45-139

Hoffman, J.J. and Ross, L.A.
*1972a
Fort Vancouver Excavations - I (May 1972). Department of The Interior, National Park Service, Fort Vancouver National Historic Site, Washington state
*1972b
Fort Vancouver Excavations - II (June 1972)
*1973a
Fort Vancouver Excavations - III: 1845 Harness Shop (February 1973)
*1973b
Fort Vancouver Excavations - IV: Chief Factor's House (September 1973)
*1974a

Fort Vancouver Excavations - VI: Sales Shop and Powder Magazine (March 1974)
*1974b
Fort Vancouver Excavations - VII: Northwest Bastion and Stockade System (July 1974)
*1974c
Fort Vancouver Excavations - VIII: Fur Store (December 1974)

Holdridge, D.A.
1956
"Ball Clays and their Properties", Transactions of the British Ceramic Society vol 55 (1956) 369-440

Holland, W.F.
1958
Fifty Years a Potter. Pottery Quarterly, Tring, Hertfordshire

Holling, F.W.
1970
"Seventeenth-Century Pottery from Ash, Surrey", Post-Medieval Archaeology vol 3 (1969) 18-30

Hollis, D. (ed)
1949
Calendar of the Bristol Apprentice Book 1532-1565: Part I 1532-1542 (Bristol Record Society's Publications vol XIV). Bristol

Hollis, D. (transcriber) and Ralph, Elizabeth (ed)
*1952
Marriage Bonds for the Diocese of Bristol excluding the Archdeaconry of Dorset, vol I 1637-1700 (Publications of the Bristol and Gloucestershire Archaeological Society Records Section, vol I). Gloucester

Holme, R.
*1688
The Anatomy of Armory, or, A Storehouse of Armory and Blazon, 1905 ed by I.H. Jeayes; book III chapt XXII section IV "Tobacco Pipe makers Tooles" (pp271-2) and section V "Tobacco Cutters Instruments" (pp272-3)

Holmes, M.R.
1951
"The So-Called 'Balarmine' Mask on Imported Rhenish Stoneware", Antiquaries' Journal vol XXXI (1951) 173-9

Holmes, S.
*1879
Upon the Distinction between the Ashes of Various Tobaccos. Privately published

Holt, R.V.
1938

The Unitarian Contribution to Social Progress in England, 2nd rev. ed 1952.
Lindsay Press, London

Honey, W.B.
1928
Old English Porcelain, 2nd ed 1946. Faber and Faber, London
1934
Dresden China: An Introduction to the Study of Meissen Porcelain, 2nd ed
1954. Faber and Faber, London
1947
German Porcelain. Faber and Faber, London
1952
European Ceramic Art from the End of the Middle Ages to about 1815, vol II.
Faber and Faber, London

Hoonaker, E.J. van
*1971
"Kortrijkse pijpen", *Verslagen en mededelingen van de Leiegouw* vol XIII no
3-4 (1971). Courtrai

Hopkins, A.F.
*1937
"A Theory Regarding TD Pipes", *Antiques* vol XXXII no 2 (November 1937) 234-5

Houghton, J.
*1693/4
[Article on clay pipe manufacture], *A Collection for Improvement of
Husbandry and Trade* no LXXVI 12 January 1693/4 pp204-6
*1695/6
[Note on imported Dutch clay pipes], *op*. *cit*. vol 8 no 189 13 March 1695/6
1st page

Houldsworth, H.O.
*1967
"The Earthwork called 'Sawley Fort", *Transactions of the Leicestershire
Archaeological and Historical Society* vol XLI (1965-6) 74-75
Housman, A.E. (ed)
1930
M. Manilii Astronomicon Liber Qvintvs. Richards, London

Howe, J.A.
1914
*A Handbook to the Collection of Kaolin, China-Clay, and China Stone, in the
Museum of Practical Geology, Jermyn St, London, S.W.* HMSO, London

Howgego, J.L.
1967
"Docks on the North Bank - A Nineteenth Century Transformation", *East London
Papers* vol 10 no 2 (Winter 1967) 74-108

Hudson, K.
1963
Industrial Archaeology: An Introduction, 2nd ed rev 1966. Baker, London
1965
The Industrial Archaeology of Southern England, 2nd ed rev 1968. David and Charles, Newton Abbot
1974
"Monuments to Whom? The State of Industrial Archaeology", *Encounter* vol XLII no 5 (May 1974) 72-77. London

Hudson, Lorelea
*1975
"English Camp (45SJ24): Artifact Summary 1971 Season, San Juan Island, Washington", pp81-134 in *Miscellaneous San Juan Island Reports 1971-1973*. Laboratory of Anthropology, University of Idaho, Moscow

Huey, P.R.
*1975
"Reworked Pipe Stems: A 17th Century Phenomenon from the Site of Fort Orange, Albany, New York", *Historical Archaeology* vol VIII (1974) 105-11

Huggins, P.J.
*1970
"Excavations at Sewardstone Street, Waltham Abbey, Essex, 1966", *Post-Medieval Archaeology* vol 3 (1969) 47-99

Huggins, P.J., Bascombe, K.N., and Edwards, Rhona
*1970
"Waltham Abbey: Monastic Site and Prehistoric Evidence 1953-67", *Transactions of the Essex Archaeological Society* vol II pt 3 (3rd ser.) (1970) 216-66

Huggins, P.J. and Huggins, Rhona
*1971
"Waltham Abbey", *The London Archaeologist* vol 1 no 11 (Summer 1971) 243-4, 246-8

Hughes, G.B.
1961a
English and Scottish Earthenware 1660-1860. Lutterworth Press, London
*1961b
"The Clay Tobacco Pipe-Maker", *Country Life* vol CXXX no 3382 28 December 1961 pp1633-4

Hughes, T. McK.
*1900
"The Smoker's Contribution to History", *Cambridge Graphic* 10 February 1900 p.10
*1915
"On Some Objects found in the King's Ditch under the Masonic Hall",

Proceedings of the Cambridge Antiquarian Society vol XIX (n.s. XIII) (1914-15) 16-27

Hume, J.R.
1974
Review of Industrial Archaeology: An Historical Survey (A. Raistrick) in Industrial Archaeology vol 11 no 1 (February 1974) 61-62

Hunt, E.H.
1967
"Labour Productivity in English Agriculture, 1850-1914", Economic History Review vol XX (2nd ser.) (1967) 280-92. London

Hurley, W.M. and Kenyon, I.T.
*1970
Algonquin Park Archaeology 1970 (Department of Anthropology University of Toronto Research Report no 3). Toronto

Hurst, D. Gillian
*1968
"Post-Medieval Britain in 1966", Post-Medieval Archaeology vol 1 (1967) 107-21
*1969
"Post-Medieval Britain in 1967", op. cit. vol 2 (1968) 175-94
*1970
"Post-Medieval Britain in 1968", op. cit. vol 3 (1969) 193-212
*1971
"Post-Medieval Britain in 1969", op. cit. vol 4 (1970) 174-88

Hurst, J. (ed)
1970
"Red-Painted and Glazed Pottery in Western Europe from the Eighth to the Twelfth Century", Medieval Archaeology vol XIII (1969) 93-147
Hussey, M.S.
*1967
"Final Excavations at the Lesser Garth Cave, Pentyrch", Transactions of the Cardiff Naturalists' Society vol XCIII (1964-66) 18-39

Imray, Jean
1963
"The Mercers' Company and East London: The First Two Hundred Years", East London Papers vol 6 no 3 (December 1963) 89-104
1966
"The Mercers' Company and East London, 1750-1850: An Exercise in Urban Development", op. cit. vol 9 no 1 (Summer 1966) 3-25

Inglis, K.S.
1963
Churches and the Working Classes in Victorian England. Routledge and Kegan Paul, London

Inskeep, R.R.
*1962
"Some Iron Age Sites in Northern Rhodesia", *South African Archaeological Bulletin* vol XVII no 67 (September 1962) 136-80

Interim Report...House of Commons Personnel and Politics 1264-1832
1932
Interim Report of the Committee on House of Commons Personnel and Politics 1264-1832 (Chairman J. Wedgwood M.P.), July 1932. Cmd 4130, HMSO, London

Irwin, Carol
*1959
"Dating English Pipe Stems", *Florida Anthropologist* vol XII no 3 (September 1959) 71-72

Jack, I.A.
*1896
"A Curious Old Pipe", *The Week* vol XIII no 15 6 March 1896 p. 349. Toronto
Jackson, J.A.
1963
"The Irish in East London", *East London Papers* vol 6 no 2 (December 1963) 105-19

Jackson, R
*1972
[Bristol clay tobacco pipe makers] (resume of talk) *BARG Bulletin* vol 4 no 4 (Spring 1972) 95. Bristol
*1973
Review of *The Bristol Tobacco-Pipe Industry* (I.C. Walker) *op*. *cit*. vol 4 no 7 (Spring 1973) 205-6. Bristol

Jakowsky, A.
*1956
"Pélerinage à St-Omer, berceau de la pipe en France", *Revue des tabacs* (Noël 1956) 23-25. Paris

Jarrett, M.G.
*1960
"Makers of Clay Pipes Recorded in North-Eastern England", *Archaeologia Aeliana* vol XXXVIII (4th ser.) (1960) 238-9
*1962
"The Deserted Village of West Whelpington, Northumberland", *op*. *cit*. vol XL (1962) 217-8
*1964
"Makers of Clay Pipes Recorded in North-Eastern England, II", *op*. *cit*. vol XLII (1964) 225-60

Jarrett, M.G. and Belcher, Jill
*1970
"Clay Pipes", pp272-9 in M.G. Jarrett "The Deserted Village of West

Whelpington, Northumberland: Second Report", _op_. _cit_. vol XLVIII (4th ser.) (1970) 183-302

Jars, M.G.
*1781
Voyages métalurgiques, ou recherches et observations... vol III. Didot, Cellot, and Jombert, Paris

Javaux, H.
*1935
La pipe en terre d'Andenne - sa fabrication et son histoire. Service d'études folkloriques et historiques de la province de Namur, Namur

Jean-Léo
*1971
Les pipes en terre françaises: du 17me siècle à nos jours. Le Grenier du Collectionneur, Brussels

Jeffreys, W.D.W.
*1955
"Multiple-Stem Pipes", _Man_ vol LX nos 4-6 (January 1955) item 6 pp8-9
*1963a
[Smoking in Africa], _South African Archaeological Bulletin_ vol 18 no 69 (September 1963) 33
1963b
[Maize in West Africa], _Man_ vol LXIII nos 224-47 (December 1963) item 247 pp194-5
*1964
[Smoking in Africa], _South African Archaeological Bulletin_ vol 19 no 75 (September 1964) 76-77
1971
"Maize and the Mande Myth", _Current Anthropology_ vol 12 no 3 (June 1971) 291-320 (includes comments by various contributors and replies by WDWJ)

Jelks, E.B.
*1973
Archaeological Explorations at Signal Hill, Newfoundland, 1965-1966 (Canadian Historic Sites: Occasional Papers in Archaeology and History, no 7, 1973) Ottawa

Jenkins, J.G.
1969
"Post-Medieval Archaeology and Folk Life Studies", _Post-Medieval Archaeology_ vol 2 (1968) 1-9

Jenkins, R.
1942
"Copper Works at Redbrook and Bristol", _Transactions of the Bristol and Gloucestershire Archaeological Society_ vol LXIII (1942) 145-67

Jewitt, Ll.
*1863
"A Few Words on 'Fairy Pipes'", The Reliquary vol III (1863) 74-78. London
*1878
The Ceramic Art of Great Britain..., 2 vols. Virtue, London

Jobey, G. and Parsons, J.E.
*1967
"Clay Pipes", pp92-3 in G. Jobey "Excavation at Tynemouth Priory and Castle" Archaeologia Aeliana vol XLV (4th ser.) (1967) 33-104

Jones, E.L.
1969
"The Reduction of Fire Damage in Southern England, 1650-1850", Post-Medieval Archaeology vol 2 (1968) 140-49

Jones, F.M.
1968
"The Aesthetic of the Nineteenth-Century Industrial Town", pp171-82 and comments in following "Discussion" section compiled by J. Summerson in H.J. Dyos (ed) The Study of Urban History. Arnold, London

Jones, W.M.
*1973
"A Late Eighteenth Century Work Camp, St. Johns Bluff, Duval County, Florida", Florida Anthropologist vol 26 no 4 (December 1973) 129-42

Jury, W. and Jury, Elsie McL.
*1954
Sainte-Marie among the Hurons, 1965 ed. Oxford University Press, Toronto
*1959
The Establishments of Penetanguishene: Bastion of the North, 1814-1856 (Bulletin no 12, Museum of Indian Archaeology, University of Western Ontario). London, Ontario

Kain, W.W.
*1903
"Trade Pipes", Acadiensis vol III no 4 (1903) 255-8 and addenda vol IV no 1 (1904) 86. Saint John, New Brunswick

Kane, R.
*1845
The Industrial Resources of Ireland. Hodges and Smith, Dublin

Kaufhold, F.H.
1968
Das Handwerk der Stadt Hildesheim in 18. Jahrhundert: Ein wirtschaftgeschichtliche Studie (Gottinger Handswerkswirtschaftliche Studien 13). Schwartz, Göttingen

Kearsley, G.
*1786
Kearsley's Table of Trades for the Assistance of Parents and Guardians etc... Kearsley, London

Kearney, H.F.
1959
Strafford in Ireland 1633-41. Manchester University Press

Keating, P.J.
1967
"Who Knows Arthur Morrison?", *East London Papers* vol 10 no 1 (Summer 1967) 43-47
1969
"Arthur Morrison", pp11-36 in A. Morrison *A Child of the Jago*, 1969 edition by MacGibbon and Kee, London
1971
The Working Classes in Victorian Fiction. Routledge and Kegan Paul, London
1973
"Fact and Fiction in the East End", pp585-602 (Chapt 25) in H.J. Dyos and M. Wolff (eds) *The Victorian City: Images and Realities*, vol 2. Routledge and Kegan Paul, London

Keating, P.J. (ed)
1971
Working-Class Stories of the 1890s. Routledge and Kegan Paul, London

Keeling, D.F.
1970
"The City of London and Tower Hamlets Cemetery", *East London Papers* vol 12 no 2 (Winter 1969-70) 118-28

Keen, L.
1969
"A Series of Seventeenth- and Eighteenth-Century Lead-Glazed Tiles from North Devon", *Journal of the British Archaeological Association* vol XXXII (3rd ser) (1969) 144-70

Kelly, J.H.
*1969
The Hill Top Site, Burslem (City of Stoke-on-Trent Archaeological Society Report no 3). Hanley, Stoke-on-Trent

Kelso, W.M.
*1966
"Excavation of a Late Seventeenth Century Domestic Refuse Pit near Lightfoot in James City County, Virginia, 1964-65", *Quarterly Bulletin, Archeological Society of Virginia* vol 20 no 4 (June 1966) 103-14
*1967
"More Excavations at Lightfoot: Another Late Seventeenth Century Domestic Refuse Pit in James City County, Virginia, 1966-67", *op. cit.* vol 22 no 2

(December 1967) 55-72
*1971
"Historical Archaeology in Georgia, 1968: Two Nineteenth Century Sites", *The Conference on Historic Site Archaeology Papers 1969* vol 4 pt 1 (1971) 16-25

Kelso, J.L. and Thorley, J.P.
1943
"The Potter's Technique at Tell Beit Mirsim, particularly in Stratum A", pp86-119 (Chapt IV) in W.F. Albright *The Excavation of Tell Beit Mirsim: Vol III, The Iron Age* (The Annual of the American Schools of Oriental Research vol XXI-XXII, 1941-43)

Kennedy, C.E.
*1969
"Chinese Pipes for Tobacco and Opium", *Antiques* vol XCV no 3 (March 1969) 408-9

Kent, B.
*1971
"Conoy Town on the Lower Susquehanna River, 1718-43", *Eastern States Archaeological Federation Bulletin* no 30 (July 1971) 13

Kent, J.
1973
"Feelings and Festivals: An Interpretation of some Working-Class Religious Attitudes", pp855-71 (Chapt 36) in H.J. Dyos and M. Wolff (eds) *The Victorian City: Images and Realities*, vol 2. Routledge and Kegan Paul, London

Kent, O.
*1973
"Winter Excavations 1972-3", *BARG Bulletin* vol 4 no 7 (Spring 1973) 197-8. Bristol

Kenyon, G.H.
*1958
"Petworth Town and Trades 1610-1760 part I", *Sussex Archaeological Collections* vol XCVI (1958) 35-107
1967
The Glass Industry of the Weald. Leicester University Press

Kenyon, T.
*1970
"Clay Pipes, Glen Airn Sawmill Site, *Arch Notes* (Monthly Newsletter of the Ontario Archaeological Society) no 70-4 (April 1970) 7th-8th pages
*1971
"Clay Pipes, Anthony's Mills and Hunter AfGv-1, 1825-50", *op. cit.* no 71-2 (February 1971) 4th-5th pages

Kenyon, W.A. and Turnbull, J.R.
*1971

The Battle for James Bay 1686. Macmillan of Canada, Toronto

Keyes, W.E.
1931
"Old-Time Tobacco Requisites", *Antiques* vol XX no 1 (July 1931) 19-22

Kidd, R.S.
*1971
Fort Geogre and the Early Fur Trade in Alberta (Provincial Museum and Archives of Alberta Publication no 2). Edmonton

Kilby, K.
1971
The Cooper and his Trade. Baker, London

Kingsford-Curram, R.
*1968
"Indications of a Pipe-Kiln at Guildford", *Surrey Archaeological Collections* vol LXC (1968) 87-90

Kinsey, W.F.
*1957
"The Oscar Liebhart Site: A Susquehannock Village of 1650-1675", *Eastern States Archaeological Federation Bulletin* no 16 (January 1957) 14-15

Kirkman, J.
*1974
Fort Jesus: A Portuguese Fortress on the East African Coast. Clarendon Press, Oxford

Kivett, M.F.
*1959
"Excavations at Fort Atkinson, Nebraska - A Preliminary Report", *Nebraska History* vol 40 (1959) 39-66

Klein, A.
1955
Rheinisches Steinzeug des 15. bis 18. Jahrhunderts (Wohnkunst und Hausrat Einst and Jetzt Band 9). Schnukluth, Darmstadt

Knight, C. (publisher)
*1851
Knight's Cyclopaedia of the Industry of All Nations, articles "Tobacco-Pipes" (pp1702-3) and "Meerschaum Pipes" (p.1190). Knight, London

Knight, E.H.
*1876
Knight's American Mechanical Dictionary, vol III articles "Tobacco", "Tobacco-booking Machine", Tobacco-curing", "Tobbacco-cutter", "Tobacco Cutting Machine", "Tobacco-grater", "Tobacco-knife", "Tobacco-packing

Machine", "Tobacco-paper", "Tobacco-pipe", "Tobacco-plug Machine", "Tobacco-press", "Tobacco-rolling Machine", "Tobacco-sheeting Machine", "Tobacco-stemming Machine", "Tobacco-stripping Machine", "Tobacco-wheel" pp2582-85. Houghton Mifflin, Boston

Knight, Isabel
*1961
"The Auld Clay Pipe", Scotland's Magazine vol 57 no 5 (May 1961) 32-34

Knight, J. (compiler)
*1894
Pipe and Pouch: the Smoker's Own Book of Poetry. Caldwell, Boston

Knight, J.K.
1970
"A Seventeenth-Century Pottery Group from Swansea Castle", Bulletin of the Board of Celtic Studies vol XXIII pt IV (May 1970) 403-11. Cardiff

Knowles, A.J.
1927
"Mediaeval Processes of Glass Manufacture", Glass vol IV (1927) - in three parts, July: pp303, 305, 307, and 309; August: pp343, 345, 349, and 359; September: pp391, 395, 397, and 399. London

Krause, E.R.
*1969-70
The Origins, Types and Quantities of English Trade Goods used by the Hudson's Bay Company Trading into Canada 1670-1870. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa

Kristenson, J.E.T.
*1959
"Johan Adolph Rømers tabakspibefabrik i Nørresundby, med et udsyn over tabaksrygningens og pibemageriets histoirie i Danmark indtil c.1800", Sprog og Kultur Tyveførste bind haefte 3-4 (1959) 79-124. Universitetsforlaget i Aarhus

Kurjack, E.B.
*1961
"Clay Pipes from the Childersburg Site in Alabama", Florida Anthropologist vol XIV no 1-2 (March-June 1961) 21-2

Laansma, S.
*1960
Pijpmakers en pijpmerken 1724-1865. Plateelbakkerij en Pijpenfabrieken Zenith, Gouda

Laboulaye, M.C. (ed)
*1845-7
Dictionnaire des arts et manufactures..., 1st ed 1845-47, two vols, "Pipe" col 2937 and "Potterie-Pipes" cols 2445-7 vol II. Librairie polytechnique

d'Aug. Decq, Brussels
*1881-2
Dictionnaire des arts et manufacturers et de l'agriculture..., 5th ed 1881-2, four vols, "Pipe" and "Potterie-Pipes" no pagination, vol IV. Librairie du dictionnaire des arts et manufactures, Paris

Laer, A.J.F. van (ed)
*1932
Correspondence of Jeremias van Rensselaer 1651-1674. University of the State of New York, Albany

Lafrenière, M. and Gagnon, F.
*1971
A la découverte du passé: fouilles à la place Royale, Quebec Ministry of Cultural Affairs, Quebec City

Laing, L.R.
*1968
"Excavations at Linlithgow Palace, West Lothian, 1966-7", Proceedings of the Society of Antiquaries of Scotland vol XVIX (1966-67) 111-47 and pls VIII-IX
1969
"Medieval Settlement Archaeology in Scotland", Scottish Archaeological Forum 1969 [vol 1] 69-70

Lamb, A.J.
*1852
"Notes on the Use of the Clay Tobacco Pipe in England", Historic Society of Lancashire and Cheshire: Proceedings and Papers Sessions III and IV (1850-52) 29-31 and pl IV

Lambart, Helen H.
*1964
Ninteenth-Century Potteries in the Province of Quebec. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa
*1967
"Bell Pottery", Canadian Antiques Collector vol 2 no 4 (April 1967) 9-10

*1970
The Rivers of the Potters (National Museums of Canada Publications in History no 2). Ottawa

Lambert, Majorie F.
*1967
"A Unique Prehistoric Anasazi Pipe", El Palacio vol 74 no 4 (Winter 1967) 41-42. Santa Fe, New Mexico

Lampard, E.E.
1973
"The Urbanizing World", pp3-57 (Chapt 1) in H.J. Dyos and M. Wolff (eds) The Victorian City: Images and Realities, vol 1. Routledge and Kegan Paul, London

Langton, E.
1956
History of the Moravian Church: The Story of the First International Protestant Church. Allen and Unwin, London

Larrabee, E. McM.
1971
"Archaeological Research at the Fortress of Louisbourg 1961-1965", Canadian Historic Sites: Occasional Papers in Archaeology and History no 2 (1971) 7-43. Ottawa

Larrabee, E. McM. and Kardas, Susan
*1968
Exploratory Excavations for the Kanaka Village, Fort Vancouver National Historic Site. Manuscript report submitted to Department of The Interior, National Parks Service

Larsen, A., Riismøller, P., and Schlüter, M.
1963
Dansk Glas 1825-1925. Nyt Nordisk Forlag Arnold Busck, Copenhagen

Lart, C.E. (ed)
1912
Registers of the French Churches of Bristol, Stonehouse, and Plymouth (Publications of the Huguenot Society of London vol XX). London

Larwood, J. and Hotten, J.C.
1866
The History of Signboards, from Earliest Times to the Present Day. Hotton, London

Latimer, J.
1887
The Annals of Bristol in the Nineteenth Century. Morgan, Bristol
1893
The Annals of Bristol in the Eighteenth Century. Privately printed
1900
The Annals of Bristol in the Seventeenth Century. George's Sons, Bristol
1908
Sixteenth Century Bristol. Arrowsmith, Bristol

Laufer, B.
*1924a
Tobacco and its Use in Asia (Anthropology Leaflet 18, Field Museum of Natural History - now Chicago Natural History Museum). Chicago
*1924b
Introduction of Tobacco into Europe (Anthropology Leaflet 19, Field Museum of Natural History - now Chicago Natural History Museum). Chicago

Laufer, B., Hambley, W.D., and Linton, R.
*1930
Tobacco and its Uses in Africa (Anthropology Leaflet 29, Field Museum of Natural History - now Chicago Natural History Museum). Chicago

Laughton, H.J.
*1923
"Tobacco Pipes of the World and the Universality of Smoking", Tobacco vol LXXXVI no 13 (26 July 1923) 19-23. New York

Lawrence, S.
*1974
(with introduction by L.A.S. Butler) "Clay Tobacco Pipe Makers in West Yorkshire", Yorkshire Archaeological Journal vol XLV (1973) 189-93

Lawton, R.
1970
"The Population of Liverpool in the Mid-Nineteenth Century", reprinted with supplementary note from Transactions of the Historic Society of Lancashire and Cheshire vol 107 (1955) 89-120 in A.R. Baker, J.D. Hamshere, and J. Langton (eds) Geographical Interpretations of Historical Studies pp379-415. David and Charles, Newton Abbot

Leavitt, T.W.
1969
"Five Years of Industrial Archaeology , Technology and Culture vol 10 no 4 (October 1969) 587-92. Chicago

Lecky, W.E.H.
1877
A History of England in the Eighteenth Century, 1892 ed, 7 vols. Appleton, New York

Lee, C.E.
1946
Passenger Class Distinctions. The Railway Gazette, London

Lee, R.K.
1972
"Planning and Social Change in East London", East London Papers vol 14 no 1 (April 1972) 25-43

Leech, K.
1964
"The Decay of Spitalfields", op. cit. vol 7 no 2 (December 1964) 57-62
1967
"The Role of Immigration in recent East London History", op. cit. vol 10 no 1 (Summer 1967) 3-18

Lefrancq, M.-G.
*1970a
"Métiers de jadis and naguère: les pipiers", Le courier Hainaut no 972 31

janvier 1970 p.20 (article signed J.D.; report on lecture by M-GL)
*1970b
"La piperie de terre, une industrie montoise oubliée", Hainaut Tourisme no 139 no 2 (April 1970) 53-5

Lejeal, G.
*1897
"La pipe dans l'antiquité", Revue encyclopédique vol VII (1897) 277-80. Paris

Lemieux, C.
*1965
Rapport sur les pipes de kaolin excavées à l'Ile-aux-Noix durant la période de feuilles allant de juin à août 1965. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa

Lenik, E.
*1965
"A Preliminary Survey of the Canistear Bloomery", Proceedings of the New Jersey Historical Society vol LXXXIII no 4 (October 1965) 269-74
*1967a
"Tobacco Pipes from the Canistear Bloomery", New Jersey History vol LXXXV no 1 (Spring 1967) 41-46
*1967b
The Fort at Van Campen's. Sussex County Historical Society, New Jersey
*1969
Booth Brothers Knife Factory. North Jersey Historical Society, New Jersey
*1970
"Nineteenth Century Clay Tobacco Pipes (A Preliminary Study)", Quarterly Bulletin, Archeological Society of Virginia vol 24 no 3 (March 1970) 174-80
*1971
"The Step Gauge: A New Tool for measuring Pipestem Bore Diameters", Historical Archaeology 1971 vol V pp100-1
*1972
"Two Unique Pipe Finds", Quarterly Bulletin, Archeological Society of Virginia vol 26 no 4 (June 1972) 205-7
*1973a
"The Truro Halfway House, Cape Cod, Massachusetts", Historical Archaeology 1972 vol VI pp77-86
*1973b
The Spirit Pond Sod House. Privately published
*1974a
"Peter Hasenclever and the American Iron Company", Northeast Historical Archaeology vol 3 no 2 (Autumn 1974) 9-17. Rome, New York state
*1974b
The Search for Norse Occupation at Spirit Pond, Maine: 1974 Excavation Report. Privately published

Leo, R.J.
1975
"An Examination of the Technology that Evolved from the Rogers Locomotive

and Machine Company, Paterson, N.J.", Northeast Historical Archaeology vol 4 no 1-2 (Spring 1975) 24-38. Rome, New York state

Leslie, R.F.
1963
"The Background of Jewish Immigration", East London Papers vol 6 no 2 (December 1963) 69-78

Lesur, A.
*1957-60
Les poteries et les faîences françaises, 5 vols. Tardy, Paris

Levesque, R.
*1971
La seigneurie des îles et îlets de Mingan. Leméac, Ottawa

Lewine, H.
*1970
Good-Bye to All That. McGraw-Hill, New York

Lewis, G.
1970
"The Buckley Clay Industries", Buckley: The Magazine of the Buckley Society no 1 (1970) 8 pages. Buckley, Flintshire

Lewis, J.M.
*1966
"The Roman Fort and Civil War Earthwork at Caerphilly Castle, Glamorgan", Archaeologia Cambrensis vol CXV (1966) 67-87
*1967
"Post-Roman Finds from the Caerleon Fortress Baths Excavation", The Monmouthshire Antiquary vol II pt II (1967) 105-17
*1968
"The Excavation of the 'New Building' at Montgomery Castle", Archaeologia Cambrensis vol CXVII (1968) 127-56
1970
"Potters and Potteries at Ewenny in the Nineteenth Century", Transactions of the Cardiff Naturalists' Society vol XCV (1968-70) 24-40

Lindeman, Carla P. and Nystuen, D.W.
*1969
The Joseph R. Brown House: Final Report on Archaeological Excavations (Minnesota Historical Archaeology Series no 1). Minnesota Historical Society, St Paul

Lindsay, J.S.
*1927
Iron and Brass Implements of the English House, rev. and enlarged ed 1964. Jacobis, Bass River, Massachusetts

Lipson, E.
1915
The Economic History of England, I: The Middle Ages, 1959 ed. Black, London
1931
The Economic History of England, III: The Age of Mercantilism, 1956 ed. Black, London

Little, B.
1954
The City and County of Bristol, 1967 ed. S.R. Publishers, Wakefield

Littré, E.
1956-58
Dictionnaire de la langue française, 7 vols. vols 1-4 Pauvert, Paris, vols 5-7 Gallimand and Hachette, Paris

Lonsdale, Gillian
1962
"The Changing Character of the East London Industry", *East London Papers* vol 5 no 2 (October 1962) 91-102

Lopez, J.
*1957
"A 'Crowned-54' Pipe Fragment from Alpine Landing, N.J.", *Bulletin of the Massachusetts Archaeological Society* vol XVIII no 3 (April 1957) 55-59

Lotte, F.
*1963
"Balzac et le tabac", *Médicine de France* no 139 (1963) 33-40, 48. Paris

Lunny, F.
n.d.(1)
Use of Turf in Industrial Appliances. Bord na Móna, Dublin
n.d.(2)
Design and Operation of Medium-Sized Steam Boiler Installations for Turf-Firing. Manuscript from author

Mackie, J.D.
1964
A History of Scotland, 1969 ed. Penguin, Harmondsworth, Middlesex

Malcolmson, Patricia E.
1970
The Potteries of Kensington: A Study of Slum Development in Victorian London. M. Phil. thesis, University of Leicester

Mallet, J.
1966
"John Baddeley of Shelton: An Early Staffordshire Maker of Pottery and Porcelain, Part I", *English Ceramic Circle Transactions* vol 6 pt 2 (1966) 124-66

1967
"John Baddeley of Shelton: An Early Staffordshire Maker of Pottery and Porcelain, Part II", op. cit. vol 6 pt 3 (1967) 181-247

Mankowitz, W. and Haggar, R.G.
1957
The Concise Encyclopaedia of English Pottery and Porcelain. Hawthorn Books, New York

Mansfield, Valerie
*1963
"Women Clay Pipe Smokers", *Colchester Archaeological Group Quarterly Bulletin* vol VI no 3 (September 1963) 30-32

Maps of Old London
1908
Black, London

Marcy, P.T.
1966
Eighteenth Century Views of Bristol and Bristolians (Bristol Branch of the Historical Association Local History Pamphlets no 16). Bristol
1969
"Bristol's Roads and Communications on the Eve of the Industrial Revolution, 1740-1780", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol LXXXVII (1968) 149-72

Margrave, R.D.
1975
"The Role of the Paterson, N.J., Silk Industry in the 19th-Century Atlantic Economy", *Northeast Historical Archaeology* vol 4 no 1-2 (Spring 1975) 53-58. Rome, New York state

Marochan, K. and Reed, K.W.
*n.d.
Some Notes on a Tobacco Pipe Kiln and its Products, Whitson St, Bristol. Manuscript from Bristol Archives Office (written ca.1956)
*1959
"Burton's Almshouse, Long Row, Bristol", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol LXXVIII (1959) 119-28

Marsden, P.R.V.
*1972a
"Report on Recent Excavations in Southwark, Part II", *Transactions of the London and Middlesex Archaeological Society* vol 23 pt I (1971) 19-41
*1972b
"A Seventeenth-Century Boat found in London", *Post-Medieval Archaeology* vol 5 (1971) 88-98

Marshall, J.D.
1958
Furness and the Industrial Revolution: An Economic History of Furness (1711-1900) and the Town of Barrow (1757-1897), with an Epilogue. Barrow-in-Furness Library and Museum Committee
1968
"Colonisation as a Factor in the Planting of Town in North-West England", pp215-30 in H.J. Dyos (ed) *The Study of Urban History*. Arnold, London
1971
Old Lakeland: Some Cumbrian Social History. David and Charles, Newton Abbot

Marshall, J.D. and Davies-Shiel, M.
1967
"Industrial Archaeology in the Lake Counties and Furness", *Northern History* vol II (1967) 112-33. Leeds
1969
The Industrial Archaeology of the Lake Counties. David and Charles, Newton Abbot

Marshall, P.
1968
The Anti-Slave Trade Movement in Bristol (Bristol Branch of the Historical Association Local History Pamphlets no 20). Bristol

Martin, J.E.
1966
Greater London: An Industrial Geography. Bell, London

Marwick, W.H.
1964
Scotland in Modern Times: An Outline of Economic and Social Development since the Union of 1707. Cass, London

Mathews, E.F.J.
1958
Economic History of Poole 1756-1815. Ph.D thesis, University of London

Mathews, W. (publisher)
1794
The New History, Survey and Description of...Bristol, or Complete Guide,... Mathews, Bristol

Matthews, L.G. and Green, J.M.
*1970
"Post-Medieval Pottery of the Inns of Court", *Post-Medieval Archaeology* vol 3 (1969) 1-17

Maxwell, M.S.
*1964
"Methods of Identification and Some Products of those Methods", pp57-60 in June D. Holmquist and Ardis H. Wheeler (eds) *Diving into the Past*. The

Minnesota Historical Society and the Council for Underwater Archaeology, place of publication not given

Maxwell, M.S. and Binford, L.H. [sic - L.R.]
*1961
Excavation at Fort Michilimackinac, Mackinac City, Michigan: 1959 Season (Pubications of the Museum, Michigan State University Cultural Series vol 1 no 1). East Lansing

Mayes, P. and Price, Elizabeth J.E., with a note on the pottery by Patrouel, Mrs. H.E. Jean le
1966
"A Cistercian-Ware Kiln of the Early Sixteenth Century at Potterton, Yorkshire", Antiquaries' Journal vol XLVI (1966) 255-76

Mayo, R.
1966
Les Huguenots à Bristol (1681-1791). Doctoral thesis, University of Lille, France

Mayhew, H.
*1861-62
London Labour and the London Poor;..., 4 vols, 1968 ed. Dover Publications, New York

Meadows, C.A.
1957
Trade Signs and their Origin. Routledge and Kegan Paul, London

Messham, J.E.
*1953
"Buckley Mugs", in the Official Programme of the Buckley Chamber of Trade Third Annual Trade Fair...1953, no pagination (6 pp)
*1956
"The Buckley Potteries", Flintshire Historical Society Publications vol XVI (1956) 31-61
Meyer, N.
1974
The Seven-Per-Cent Solution, 1975 ed. Ballantine Books, Toronto

Michael, R.L.
*1972
"A Small House in Brownsville", Pennsylvania Archaeologist vol 42 no 3 (September 1972) 45-58

Milefanti, H.C. and Brears, P.C.D.
*1972
"Pottery Kilns at Rawmarsh near Rotherham, Yorkshire", Post-Medieval Archaeology vol 5 (1971) 193-5

Miles, T.J. and Saunders, A.D.
*1971
"King Charles's Castle, Tresco, Scilly", ibid. 1-30

Miller, C.F.
*1960
"The Excavation and Investigation of Fort Lookout Trading Post II (39LM57) in the Fort Randall Reservoir, South Dakota", River Basin Surveys Papers nos 15-20, Bureau of American Ethnology Bulletin 176 pp49-62. U.S. Government Printing Office, Washington

Minchinton, W.E.
1954
"Bristol - Metropolis of the West in the Eighteenth Century", Transactions of the Royal Historical Society vol 4 (5th ser.) (1954) 69-89
1962
The Port of Bristol in the Eighteenth Century (Bristol Branch of the Historical Association Local History Pamphlets no 5). Bristol

Minchinton, W.E. (ed)
*1957
The Trade of Bristol in the Eighteenth Century (Bristol Record Society's Publications vol XX). Bristol

Miquelon, D.
1970
"A Brief History of Lower Fort Garry", Canadian Historic Sites: Occasional Papers in Archaeology and History no 4 (1970) 9-41. Ottawa

Miquelon, Patricia
*1971
Fur Trade Goods of the Montreal Traders 1760-1821. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa

Minto, C.S.
Victorian and Edwardian Scotland from Old Photographs. Batsford, London

Mitchell, B.M.
*1969
"Archaeology of the Petawawa River: The Second Site at Montgomery Lake", Michigan Archaeologist vol 15 no 1-2 (March-June 1969) 1-53

Mitchell, B.M., Croft, D.A., Butler, P.J., and Cawthorn, R.J.
*1970
"The Petawawa Small Sites Report", Ontario Archaeology, publication no 15 (1970) 20-53

Mitchell, G.F.
1971
"The Larnian Culture: A Minimal View", Proceedings of the Prehistoric

Society vol XXXVII pt II (1971) 274-83

Mitchell, Rosamond J. and Leyes, Mary D.R.
1958
A History of London Life, 1963 ed. Penguin, Harmondsworth, Middlesex

Moffit, L.
1925
England on the Eve of the Industrial Revolution, 1963 ed. Cass reprints, London

Moisley, H.A.
1952
"The Industrial and Urban Development of the North Staffordshire Conurbation", *Transactions and Papers, Institute of British Geographers* publication no 17 (1951) 149-65

Mole, D.E.H.
1973
"Challenge to the Church: Birmingham, 1815-65" pp815-36 (Chapt 34) in H.J. Dyos and M. Wolff (eds) *The Victorian City: Images and Realities*, vol 2. Routledge and Kegan Paul, London

Molin, A. de
*1897
"Les pipes antiques", *Bulletin de l'association pro Aventico* vol VII (1897) 35-41. Lucerne

Molinier, E.
*1899
article "Pipe" in *La grande enclyclopédie*... (1886-1902), vol 26 no pagination. Lamirault, Paris

Moore, J.W. jr and Stinson, D.E. jr
*1973
Bent's Old Fort: An Archaeological Study. State Historical Society of Colorado and Pruet Publishing Company, place of publication not given

Moorhouse, S.
1971
"Finds from Basing House, Hampshire (*c*. 1540-1645): Part One", *Post-Medieval Archaeology* vol 4 (1970) 31-91
1972a
"Finds from Basing House, Hampshire (*c*. 1540-1645): Part Two", *op*. *cit*. vol 5 (1971) 35-76
*1972b
"Post-Medieval Britain in 1970", *ibid*. 197-222
*1972c
"Excavations at Burton-in-Lonsdale: A Reconsideration", *Yorkshire Archaeological Journal* vol XLIII (1971) 85-98

*1973
"The Finds", pp92-116 in C.F. Slade "Excavations at Reading Abbey", *Berkshire Archaeological Journal* vol 66 (1971) 65-116

Morgan, F.C.
*1945
"Private Purse Accounts of the Marquis of Hertford Michaelmas 1641-2", *Antiquaries' Journal* vol XXV pt 1-2 (January-April 1945) 12-42

Morrell, B.
1975
"The Evolution of the Rogers Locomotive Company, Paterson, N.J.", *Northeast Historical Archaeology* vol 4 no 1-2 (Spring 1975) 17-23. Rome, New York state

Morrison, A.
1891
"A Street", *Macmillan's Magazine* vol LXIV (October 1891) 460-3. London
1894
Tales of Mean Streets. (Fenno, New York, edition 1895)
1896
A Child of the Jago. (Nelson, London and Edinburgh, edition 1913)
1899
To London Town. Methuen, London

Mortimer, R.
1967
Early Bristol Quakerism: The Society of Friends in the City 1654-1700 (Bristol Branch of the Historical Association Local History Pamphlets no 17). Bristol
1971
Minute Book of the Men's Meeting of the Society of Friends in Bristol, 1667-1686 (Bristol Record Society's Publications vol XXVI). Bristol

Morton, H.V.
*1935
"A Pinch of Snuff", *Wills's Works Magazine* vol VII no 53 (May 1935) 181-2. Bristol

Mountsford, A.R. and Celoria, F.
*1968
"Some Examples of Sources in the History of 17th Century Ceramics", *Journal of Ceramic History* no 1 (1968)

Muret-Sanders Encyclopaedic English-German and German-English Dictionary
1891-1901
Muret-Sanders encyklopädisches englisch-deutches und deutche-englisches Wörterbuch..., grosse Ausgabe, 2 vols in 4 parts. Langenscheidt, Berlin-Schöneberg

Murphy, J.L.
*1974
"Provenience of Seven Reed Stem Pipes from Fort Union, New Mexico", *The Kiva* vol 39 no 3-4 (Spring-Summer 1974) 247-51. Tucson

Murphy, J.L. and Reich, K.
*1973
"Mold Marks on Mogadore, Ohio, Reed Stem Tobacco Pipes", *Quarterly Bulletin Archeological Society of Virginia* vol 28 no 2 (December 1973) 94-96

Maynard, D.C.
1970
"A Group of Post-Medieval Pottery from Dover Castle", *Post-Medieval Archaeology* vol 3 (1969) 31-46

Macartney, M.H.H.
*1906
"Old English Pipes", *The Connoisseur* vol XVI (September-December 1906) 12-16

McBride, P.W.J., Lorn, R., and Davis, R.
*1972a
"A Mid-17th Century Merchant Ship-Wreck near Mullion, Cornwall: An Interim Report", *Cornish Archaeology* vol 10 (1971) 75-78
*1972b
"A Mid-17th Century Merchant Ship found near Mullion Cove, Cornwall: An Interim Report", *The International Journal of Nautical Archaeology and Underwater Exploration* vol 1 (1972) 135-42

McClurkan, B.
*1972
"Fort Desha: the Location of Arkansas Post ca.1735-1750", *The Conference on Historic Site Archaeology Papers 1971* vol 6 (1972) 32-39

MacCord, H.A. sr
*1967
"The Second Church at Hampton, Virginia: An Archeological Study, Part 1", *Quarterly Bulletin, Archeological Society of Virginia* vol 22 no 1 (September 1967) 39-48
*1969
"Camden: A Post-contact Indian Site in Caroline County" *op. cit.* vol 24 no 1 (September 1969) 1-55
*1970
"The John Green Site, Greensville County, Virginia", *op. cit.* vol 25 no 2 (December 1970) 98-138
*1971
"The Lipes Site, Botetourt County, Virginia" *op. cit.* vol 26 no 2 (December 1971) 53-107
*1972a
"The Suffolk By-Pass Trash-Pit, Nansmond County, Virginia", *op. cit.* vol 26 no 4 (June 1972) 165-72
*1972b
"Hungar's Neck Trash-Pit, Northumberland County, Virginia", *op. cit.* vol 27

no 1 (September 1972) 59-64

McCrery, P.A.
*1968
"Two Pipes from Prince George County, Virginia", _op. cit._ vol 23 no 1 (September 1968) 37-38

Macdermot, E.T.
1927
History of the Great Western Railway: Vol I 1833-1863, rev ed 1964 by C.R. Clinker. Allan, London

Macdonald, A.H.
*1939
"Clay Pipes found at Marlborough" [part I], _Report of the Marlborough College Natural History Society_ no 87 (1938) 37-41. Marlborough, Wiltshire
*1941
"Clay Pipes found at Marlborough" [part II], _op. cit._ no 89 (1940) 25-27

McGrath, P.
1970
John Whitson and the Merchant Community of Bristol (Bristol Branch of the Historical Association Local Pamphlets no 25). Bristol

McGrath, P. (ed)
*1955
Merchants and Merchandise in Seventeenth-Century Bristol (Bristol Records Society's Publications vol XIX), 1968 ed. Bristol

McGuire, J.D.
*1899
"Pipes and Smoking Customs of the American Aborigines, based on Material in the U.S. National Museum", _Annual Report of the Board of Regents of the Smithsonian Institution...for the Year ending June 30, 1897: Report of the U.S. National Museum: Part I_, pp351-645. Washington

MacInnes, C.M.
*1926
The Early English Tobacco Trade. Kegan _et al_, London
1939
Bristol: A Gateway of Empire. Arrowsmith, Bristol (also reprinted 1968 by David and Charles, Newton Abbot)
1963
Bristol and the Slave Trade (Bristol Branch of the Historical Association Local History Pamphlets no 7)
1965
Ferdinando Gorges and New England (_op. cit._ no 12)
1967
Captain James and the North West Passage (_op. cit._ no 19)

MacKay, D.
1936
The Honourable Company, 1966 ed. McClelland and Stewart, Toronto

Mackenzie, C.
*1957
Sublime Tobacco. Chatto and Windus, London

MacLean, Alison (formerly Davoud, Alison)
*1969a (Davoud)
Clay Pipe Report for the Excavation of the Roma Settlement, Prince Edward Island. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa
*1969b (Davoud)
Clay Pipe Report for the Excavation of Beaubassin [Nova Scotia]. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa
*1971 (MacLean)
Clay Pipes from Fort Beauséjour (Manuscript Report no 36, National Historic Parks and Sites Branch, Parks Canada, Ottawa)

McLeod, Ellen
1969
Fort Walsh, Saskatchewan (op. cit. no 25)

Macnab, P.A.
*1972
"The Last Refuge", The Scots Magazine vol 97 no 3 (n.s.) (June 1972) 258-63

McWhirter, N. and R. (comp. and ed)
1972
The Guinness Book of Records, 19th ed. Guinness Superlatives, London

Nance, E.M.
1935
"Soaprock Licences", English Ceramic Circle Transactions no 3 (1935) 73-84
*1942
The Pottery and Porcelain of Swansea and Nantgarw. Batsford, London and Malvern Wells

National Historic Park News
*1970
"The Fortress of Louisbourg National Historic Park, 1961-'69", National Historic Parks News no 2 (February 1970) 2 pages. Parks Canada, Ottawa

Nef, J.U.
1932
The Rise of the British Coal Industry, vol I. Routledge, London

Neil, J.S.
*1913
"The Story of the Caledonian Pottery, Glasgow", Old Glasgow Club Transactions vol II (1909-13) 319-25

Neill, W.T.
*1968
"The Galpin Trading Post Site at Silver Bluff, South Carolina", Florida Anthropologist vol 21 no 2 and 3 (June-September 1968) 42-54

Neitzel, R.S.
*1965
Archeology of the Fatherland Site: The Grand Village of the Natchez (Anthropological Papers of the American Museum of Natural History vol 51 pt 1). New York

Neuburg, V.E.
1973
"The Literature of the Streets", pp191-209 (Chapt 7) in H.J. Dyos and M. Wolff (eds) The Victorian City: Images and Realities, vol 1. Routledge and Kegan Paul, London

Neve, Dominique
*1960
"Les pipes d'Andenne sont les meilleurs", Femmes d'aujourd'hui no 802 (15 September 1960) 28-9, 76

New English Bible
1970
The New English Bible with the Apocrypha. Oxford and Cambridge University Presses

NMAS files
*various letters and lists, also donation notices recorded in the Proceedings of the Society of Antiquaries of Scotland, from files of the National Museum of Antiquities of Scotland

Nichol, N.
*1966
Glasgow and the Tobacco Lords. Longmans Green, London

Nickel, H.G.
*1966
"Boothbay Region - Site EB 2", Maine Archaeological Society Bulletin no 6 (October 1966) 13-15

Nicks, Gertrude C.
*1969
The Archaeology of Two Hudson's Bay Company Posts: Buckingham House (1792-1800) and Edmonton House III (1810-1813). M.A. thesis, University of Alberta, Edmonton
*1970
"Toward a Trait List for the North Saskatchewan River in the late Eighteenth and Early Ninteenth Centuries", The Western Canadian Journal of Anthropology

vol I no 2 (July 1970) 35-53. Edmonton, Alberta

Noble, W.C.
*1968
"'Vision Pits', Cairns and Petroglyphs at Rock Lake, Algonquin Provincial Park, Ontario", *Ontario Archaeology* Publication no 11 (June 1968) 47-64
*1973
"The Excavation and Historical Identification of Rocky Mountain House", *Canadian Historic Sites: Occasional Papers in Archaeology and History* no 6 (1973) 55-163. Ottawa

Nock, O.S.
1962
The Great Western Railway in the 19th Century. Allan, London

Noël Hume, Audrey
*1963
"Clay Tobacco Pipe Dating in the Light of Recent Excavations", *Quarterly Bulletin, Archeological Society of Virginia* vol 18 no 2 (December 1963) 22-25
*1971
"English Clay Tobacco Pipes Bearing the Royal Arms from Williamsburg", *Post-Medieval Archaeology* vol 4 (1970) 141-46 pls VI-VIII
*1973
"A Group of Artifacts recovered from an Eighteenth-Century Well in Williamsburg", *Colonial Williamsburg Occasional Papers in Archaeology* vol I (1973) 1-24
1974
Archaeology and the Colonial Gardener (Colonial Williamsburg Archaeological Series no 7). Williamsburg

Noël Hume, I.
1958
"German Stoneware Bellarmines - An Introduction", *Antiques* vol LXXIV no 5 (November 1958) 439-41
1960
"Rouen Faïence in Eighteenth-Century America", *op. cit.* vol LXXVIII no 6 (December 1960) 559-61
*1962
Excavations at Rosewell in Gloucester County, Virginia, 1957-1959 (Paper 18, Contributions from the Museum of History and Technology, United States National Museum Bulletin 225). Smithsonian, Washington
*1963
Here Lies Virginia. Knopf, New York
*1966a
Excavations at Clay Bank in Gloucester County, Virginia, 1962-1963 (Paper 52, Contributions from the Museum of History and Technology, United States National Museum Bulletin 249). Smithsonian, Washington
*1966b
Excavations at Tutter's Neck in James City County, Virginia, 1960-1961

(Paper 53 op. cit.). Smithsonian, Washington
1966c
"Mugs, Jugs, and Chamber Pots", pp520-22 in Edith Gaines (ed) "Collectors' Notes", Antiques vol XC no 4 (October 1966) 520-23
1967
"Rhenish Gray Stonewares in Colonial America", op. cit. vol XCII no 3 (September 1967) 349-53
1969a
"Pearlware: Forgotten Milestone of English Ceramic History", op. cit. vol XCV no 3 (March 1969) 390-97
1969b
Glass in Colonial Williamsburg's Archaeological Collections (Colonial Williamsburg Archaeological Series no 1). Williamsburg
1969c
Pottery and Porcelain in Colonial Williamsburg's Archaeological Collections (op. cit. no 2). Williamsburg
1970a
"The Rise and Fall of English White Salt-Glazed Stoneware, Part I", Antiques vol XCVII no 2 (February 1970) 248-55
1970b
"The Rise and Fall of English White Salt-Glazed Stoneware, Part II", op. cit. vol XCVII no 3 (March 1970) 408-13
*1970c
A Guide to Artifacts of Colonial America. Knopf, New York
1972a
"The What, Who, and When of English Creamware Plate Design", Antiques vol CI no 2 (February 1972) 350-55
1972b
"Creamware to Pearlware: A Wiliamsburg Perspective", pp217-54 in I.M.G. Quimby (ed) Winterthur Conference Report 1972: Ceramics in America. The Henry Francis du Pont Winterthur Museum, Winterthur, Delaware
1974
All the Best Rubbish. Harper and Row, New York

Norris, N.E.S.
*1971
"A Victorian Pipe Kiln in Lewes" Post-Medieval Archaeology vol 4 (1970) 168-70 and pl IX

Norton, F.H.
1952
Elements of Ceramics. Addison-Wesley, Reading, Massachusetts

Notes and Queries
*1st ser vol IX no 234 22 Apr 1854 pp372-3: "Clay Tobacco-Pipes", Henry T. Riley
*1st ser vol IX no 241 10 June 1854 p.545: "Clay Tobacco-Pipes", W.J. Bernhard Smith
*1st ser vol X no 245 8 July 1854 pp23-24: "A Paper of Tobacco", B.H.C.
*1st ser vol X no 246 15 July 1854 pp48-49: "Clay Tobacco-Pipes", William

Bates; M - a L [sic]
*1st ser vol X no 254 9 Sept 1854 pp211-2: "Clay Tobacco-Pipes", John Dixon; C.H.
*1st ser vol X no 265 25 Nov 1854 pp428-9: "Tobacco Smoking: Queen Elizabeth", J.N. Bagnall; F.C.H.
*1st ser vol XI no 272 13 Jan 1855 p.37: "Clay Tobacco-Pipes", Arthur Paget
*1st ser vol XI no 275 3 Feb 1855 pp93-94: "Clay Tobacco-Pipes", W.J. Bernhard Smith
*1st ser vol XI no 276 10 Feb 1855 pp111-2: "Tobacco Smoking", B.H.C.
*1st ser vol XI no 280 10 Mar 1855 pp192-3: "Clay Tobacco-Pipes", J.
*2nd ser vol VII 1 Jan 1859 p.10: "English Clay Pipes", H.E. Smith
*5th ser vol IV 24 July 1875 p.67: "A History of Snuff and Tobacco", Harry Blyth
*5th ser vol IV 23 Oct 1875 p.328: "Metal Tobacco Pipes"; Outis
*5th ser vol IV 18 Dec 1875 pp495-6: "Metal Tobacco Pipes", Dardwe Wento; Edward Peacock; J.H.I. Oakley; J.S.K.; W.E.; W.E.B.; W.J. Bernhard Smith
*5th ser vol V 29 Jan 1876 p.94: "Metal Tobacco Pipes", Walter Kirkland
*5th ser vol V 26 Feb 1876 pp162-3: "Fairy Pipes", F.S.
*5th ser vol V 22 Apr 1876 p.336: "Fairy Pipes", J. Henry; Edward Peacock
*6th ser vol XI 25 Apr 1885 p.323: "Wooden Pipes", A.J.M.
*9th ser vol V 30 June 1900 p.516: "Winchester Pipes", Percy Simpson; Everard Home Coleman
*9th ser vol VI 6 Oct 1900 p.276: "Tobacco Tongs", Albert Gough; J.G. Wallace-Jones; Percy Simpson
*10th ser vol XI 2 Jan 1909 p.10: "Master Pipe Maker", Robert Birkbeck
*10th ser vol XI 17 Apr 1909 p.316: "Master Pipe Maker", J.Holden MacMichael
*10th ser vol XI 24 Mar 1909 p.328: "Women and Pipes", St Swithin
*10th ser vol XI 8 May 1909 p.378: "Women and Pipes", J. Eliot Hodgkin; C.C.B.
*vol CLXXXII (Jan-June 1942) 31 Jan 1942 p.64: "Gauntlett Pipes", F.C. Morgan
*vol CLXXXII (Jan-June 1942) 14 Feb 1942 p.96: "Gauntlett Pipes", J. Bennett-Stanford
*vol CLXXXII (Jan-June 1942) 7 Mar 1942 p.139: "Gauntlett Pipes", A.H. Dunhill

Nott, Helena E. (ed)
*1935
The Deposition Books of Bristol, vol I 1643-1647 (Bristol Record Society's Publications vol VI). Bristol

Nott, Helena E. and Ralph, Elizabeth (eds)
*1948
The Deposition Books of Bristol, vol II 1650-54 (*op. cit.* vol XIII)

Nouveau dictionnaire étymologique et historique
1964
A. Dauzat, J. Dubois, and H. Mitterand eds. Larousse, Paris

Nunoo, R.B.
*1957
"Excavations at Asebu in the Gold Coast", *Journal of the West African Science Association* vol 3 no 1 (February 1957) 12-44 (plus letter and photographs sent 23 May 1969). Ibadan, Nigeria

Nystuen, D. and Lindeman, Carla G.
*1969
The Excavation of Fort Renville: An Archaeological Report (Minnesota Historical Archaeology Series no 2). Minnesota Historical Society, St Paul

Odell, R.
1965
Jack the Ripper, in Fact and Fiction, 1966 rev ed. Mayflower Books, London

OED
1933
The Oxford English Dictionary..., 13 vols, ed by J.A. Murray *et al*. Clarendon Press, Oxfrd

Official...*Catalogue* of the 1851 London Exhibition
*1851
Official Descriptive and Illustrated Catalogue of the London Great Exhibition. 3 vols. Spicer, London

Olds, Doris L.
*1969
Archeological Investigations at Fort Griffin Military Post, Shackelford County, Texas, Texas Archeological Research Laboratory, University of Texas at Austin

Oliver, B.W.
*1948
"The Three Tuns, Barnstaple", *Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art* vol LXXX (1948) 147-58

Oliver, J.L.
1961
"The East London Furniture Industry", *East London Papers* vol 4 no 2 (October 1961) 88-101

Olsen, D.J.
1974
"Victorian London: Specialization, Segregation, and Privacy", *Victorian Studies* vol XVII no 3 (March 1974) 265-78. Bloomington, Indiana

Omwake, H.G.
*n.d.
Dating Fleur-de-Lis Marked White Kaolin Pipes. Manuscript from author
*1946
"Trade Goods found in Sinepuxent Neck on Maryland's Eastern Shore",

Bulletin, Archaeological Society of Delaware vol 4 no 3 (1946) 13-25

*1955

"Concerning 'TD' Clay Pipes", Bulletin of the Nassau Archaeological Society vol 1 no 1 (Summer 1955) 26-28 Sea Cliff, New York state

*1956

"Date-Bore Diameter Correlation in English White Kaolin Pipe Stems, Yes or No?", Quarterly Bulletin, Archeological Society of Virginia vol 11 no 1 (September 1956) 12 pages

*1957a

Report of an Examination of White Clay Pipe Stem Fragments Excavated at Portland Point, New Brunswick, Canada. Manuscript, Department of Canadian History, New Brunswick Museum, Saint John

*1957b

Report of the Examination of a Series of Photographs of the Clay Pipe Bowl Fragments recovered during the 1955 Excavations at Portland Point, New Brunswick, Canada. Manuscript, Department of Canadian History, New Brunswick Museum, Saint John

*1958

"Kaolin Pipes from the Schurz Site", Bulletin of the Archeological Society of Connecticut no 29 (1958) 3-13

*1959

"White Kaolin Pipes from the Oscar Leibhart Site", pp126-35 in J. Witthoft and W.F. Kinsey III (eds) Susquehannock Miscellany. Pennsylvania Historical and Museum Commission, Harrisburg

*1961

"Peter Dorni White Kaolin Pipes", Bulletin, the Archeological Society of New Jersey no 18-19 (May 1961) 12-15

*1962

Report of Examination of Plate [illustrating clay pipes] prepared for the Fort Michimackinac Report No 2. Manuscript from author

*1963a

"Non-Aboriginal Artifacts", pp40-43 in H.G. Omwake and T.D. Stewart (eds) "The Townsend Site near Lewes, Delaware", The Archeolog vol XV no 1 (1963). Seaford, Delaware

*1963b

Report of the Examination of White Kaolin Pipe Bowl and Stem Fragments recovered from the Excavation of Fort Albany on the Southwestern Shore of James Bay, Ontario, Canada. Manuscript from author

*1963c

Report on the Examination of Clay Pipe Bowls, Bowl Fragments and Stem Fragments from Fort Ligonier, Ligonier, Pa, [and other nearby sites] submitted by Jacob R. Grimm. Manuscript from author. (See also Omwake 1970)

*1964a

Report on the Examination of White Kaolin Pipe Stems and Bowl Fragments recovered during the Excavation of Kipp's Post, a Columbia Fur Company Trading Post at the Mouth of the White River, Montrail County, North Dakota. Manuscript from author

*1964b

An Examination of a Collection of White Kaolin Pipe Bowl and Stem Fragments recovered from the Santa Rosa Pensacola Site, ES-22. Manuscript from author. (See also Omwake 1965d)

*1964c

Report on an Examination of Photographs of White Kaolin Pipe Stem and Bowl Fragments recovered from Rocky Mountain House sites. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa

*1965a

Evaulation of Kaolin Pipe Evidence from Casemate 4 Right, Fortress of Louisbourg. Manuscript, Fortress of Louisbourg Restoration Section, Fortress of Louisbourg National Historic Park, Louisbourg

*1965b

"Analysis of 19th Century White Kaolin Pipe Fragments from the Mero Site, Door County, Wisconsin", Wisconsin Archaeologist vol 46 no 2 (n.s.) (June 1965) 125-39 (Preface by R.J. Mason pp125-26)

*1965c

"Report of Examination of White Kaolin Pipe Stem and Bowl Fragments from the Orringh Stone Tavern Site, the Canawaugus Village, and the Sackett Site", pp21-32 in C.F. Hayes III The Oringh Stone Tavern and Three Seneca Sites of the Late Historic Period (Research Records of the Rochester Museum of Arts and Sciences no 12). Rochester, New York state

*1965d

"White Kaolin Bowl and Stem Fragments", pp41-51 in H.G. Smith (ed) Archaeological Excavations at Santa Rosa Pensacola (Notes in Anthropology vol 10, Department of Anthropology, Florida State University). Tallahassee. (A shortened version of Omwake 1964b)

*1967a

"A Unique Dutch Clay Pipe", The Archeolog vol XIX no 1 (1967) 1-4. Seaford, Delaware

*1967b

"An Evaluation of an Assortment of White Kaolin Pipe Bowl and Stem Fragments surface-collected from an Apparent Colonial Period Refuse Area near Chestertown, Maryland" and "Supplemental Report on Additional White Clay Pipe Evidence recovered from the Buck Site near Chestertown, Maryland", Bulletin of the Archaeological Society of Delaware no 6 (n.s.) (1967) 3-30

*1970

[Study of pipe material from Fort Ligonier], pp112, 114, 116, 118, and 121 in J.L. Grimm Archaeological Investigation of Fort Ligonier 1960-1965 (Annals of Carnegie Museum vol 42). Pittsburgh. (A shortened version of Omwake 1963c)

*1972

"Report on the Examination of Four White Kaolin Pipes from the Ryder's Pond Site, Brooklyn, King's County, New York", Bulletin, New York State Archeological Association no 56 (November 1972) 23-24

Omwake, H.G. and Becker, M.J.

*1965

"Evaluation of an Assortment of White Clay Pipe Bowl and Stem Fragments Surface-Collected and Excavated from Sites in Southern Michigan and Ohio", Northwest Ohio Quarterly vol XXXVII no 4 (Autumn 1965) 133-50

Ons Heem
*1963
"Pijp en tabak uit land en stad", Ons Heem vol XVII no 5 (bloiemaand 1963) 164-96 - large number of items on pipes and tobacco by various contributors. Antwerp

Ortiz Fernández, F.
*1940
Cuban Counterpoint: Tobacco and Sugar, 1947 ed (translation by Harriet de Onís of Contrapunteo cubano del tobaco y el azúcar, Havana 1940). Knopf, New York

Oswald, A.H.
*files
Drawings by AHO of pipe material in the Cuming Museum, London, sent to H.G. Omwake (copies sent to ICW by HGO)
*1951
"English Clay Tobacco Pipes", Archaeological News Letter vol 3 no 10 (April 1951) 153-9. London
*1953
"Clay Pipes from Sibdon Castle", Transactions of the Shropshire Archaeological Society vol LIV (1951-53) 43-44
*1955a
"The Evolution and Chronology of English Clay Tobacco Pipes", Archaeological News Letter vol 5 no 12 (1955) 243-50. London. (Revised version of Oswald 1951)
*1955b
"Clay Tobacco Pipes from Deritend", Transactions and Proceedings of the Birmingham Archaeological Society vol LXXIII (1955) 115-6
*1955c
"Clay Pipes", pp92-97 in J.G. Hurst and J. Golsen "Excavations at St Benedict's Gates, Norwich, 1951 and 1953", Norfolk Archaeology vol XXXI no 1 (1955) 1-112 (p.97 includes a brief note by Norwich pipemaking by Hurst and Golsen)
*1958
"The Clay Pipes", pp33-35 in P.W. Gathercole "Excavations at Oakham Castle, Rutland, 1953-54", Transactions of the Leicestershire Archaeological and Historical Society vol XXXIV (1958) 17-38
*1959a
"A Case of Transatlantic Deduction", Antiques vol LXXVI no 1 (July 1959) 59-61
*1959b
"Tobacco Pipes", pp108-11 in K.M. Kenyon Excavations in Southwark 1945-1947 (Research Paper no 5, Surrey Archaeological Society)
*1959c
"Tobacco Pipes", pp210-8 and pls 127-30 in Concise Encyclopaedia of Antiques vol 4. Rainbird McLean, London
*1960a
"The Archaeology and Economic History of English Clay Tobacco Pipes", Journal of the British Archaeological Association vol XXIII (3rd ser.) (1960) 40-102

*1960b
"Clay Tobacco Pipes from Bromsgrove", Transactions of the Worcestershire Archaeological Society vol XXXVII (n.s.) (1960) 37-38
*1960c
(with additional comments by K.W. Reed) "The Clay Pipe Stamps", pp63-64 in G. Webster "Cirencester: Dyer Court Excavations, 1957", Transactions of the Bristol and Gloucestershire Archaeological Society vol LXXVIII (1959) 44-85
*1961
"The Evolution and Chronology of English Clay Tobacco Pipes", Archaeological News Letter vol 7 no 3 (September 1961) 55-62. London. (Revised version of Oswald 1955a)
*1962
"Tobacco Pipes from Street", p.48 in D.B. Whitehouse "Post-Medieval Pottery from Worcester 1960-61", Transactions of the Worcestershire Archaeological Society vol XXXIX (n.s.) (1962) 33-48
*1963
"The Clay Pipes", p.167 in J.G. Hurst "Excavations at Barn Road, Norwich, 1954-55", Norfolk Archaeology vol 33 no 2 (1963) 131-79
*1967
English Clay Tobacco Pipes. British Archaeological Association, London. (Reissue with updated bibliography of Oswald 1960a)
*1968
Clay Smoking Pipes recovered from the Sunken City of Port Royal: May 1, 1966-September 30,1967. R.F. Marx, Jamaica National Trust Commission, Kingston
*1969
Clay Smoking Pipes recovered from the Sunken City of Port Royal vol II. R.F. Marx, Jamaica National Trust Commission, Kingston
*1970a
(with introduction by J. Barber) "Marked clay Pipes from Plymouth, Devon", Post-Medieval Archaeology vol 3 (1969) 122-42
*1970b
"The Clay Tobacco Pipe: Its Place in English Ceramics", English Ceramic Circle Transactions vol 7 pt 3 (1970) 222-45 and pls 200-14
*1970c
"Clay Pipes", pp91 and 93 in D. Barker "Excavations in Bedford, 1967", Bedfordshire Archaeological Journal vol 5 (1970) 67-100
*1971
"Clay Pipes", pp53-4 and 55 in P. Rahtz "Excavations on Glastonbury Tor, Somerset, 1964-6", Archaeological Journal vol CXXVII (1970) 1-81

Oswald, A.H. and Hughes, R.G.
1974
"Nottingham and Derbyshire Stoneware", English Ceramic Circle Transactions vol 9 pt 2 (1974) 140-89 and pls 89-104

Oswald, A.H. and James, R.E.
*1955a
"Tobacco Pipes of Broseley, Shropshire", Archaeological News Letter vol 5 no 10 (March 1955) 187-90. London

*1955b
"Tobacco Pipes of Broseley, Shropshire; Part II, Detailed Lists", op. cit. vol 5 no 11 (April 1955) 222-25. London

Oswald, A.H. and Wells, P.K.
*1974
"Clay Pipes", pp36, 37 in Eleanor Russell et al "Excavations on the Site of the Deserted Medieval Village of Kettleby Thorpe, Lincolnshire", Journal of the Scunthorpe Museum Society Series 3 (Archaeology) no 2 (1974)

Owen, A.P.
*1969
"President Pipes - A Summary", The Chesopiean vol 7 no 2 (April 1969) 47. Norfolk, Virginia

Owen, H.
*1873
Two Centuries of Ceramic Art in Bristol.... Bell and Daldy, London

Owen, H.G.
1965
"The Liberty of the Minories: A Study in Elizabethan Religious Radicalism", East London Papers vol 8 no 2 (December 1965) 81-97

Owen, M.B.
*1967
"Clay Tobacco Pipes from Bath", Proceedings of the Somerset Archaeological and Natural History Society vol 111 (1967) 51-55

Owles, Elizabeth and Smedley, N.
*1966
"Archaeology in Suffolk, 1966", Proceedings of the Suffolk Institute of Archaeology vol XXX pt 3 (1966) 275-83
*1968
"Archaeology in Suffolk, 1968", op. cit. vol XXXI pt 2 (1968) 188-201

Oxberry, J.
*1937
"The Local Clay Pipe Industry", Proceedings of the Society of Antiquaries of Newcastle upon Tyne vol VII (n.s.) (1937) 64-66 and pl I

Ozanne, P.C.
*1963
"Notes on the Early Historic Archaeology of Accra", Transactions of the Historical Society of Ghana vol VI (1962) 51-70
*1964a
"The Archaeological Contribution to the Ashanti Research Scheme", Appendix XI (pp50-59) in Report of the First Conference, Ashanti Research Project. Institute of African Studies, University of Ghana, Legon
*1964b

"Excavation at Ladoku: Preliminary Report", *The West African Archaeological Newsletter* no 1 (December 1964) 8-10. Ibadan, Nigeria
*1965
"Ahwene Koko: Seventeenth-Century Wenchi", *Ghana Notes and Queries* no 8 (1965) 18
*1969
"The Diffusion of Smoking in West Africa", *Odu: Journal of Yoruba Studies* vol 2 (n.s.) (December 1969) 29-42. Ibadan, Nigeria

Ozanne, P.C. and York, R.N.
*1974
[Comments on R.N. York's "Excavations at New Buipe" in *WAJA* 3 (1973) 1-189], *West African Journal of Archaeology* vol 4 (1974) 199-200. Ibadan, Nigeria

O'Neil, B.H.St J.
*1961
"A Note on Clay Pipes from Hungate, York", *Yorkshire Archaeological Journal* vol XL no CLIX (1961) 378-81

Ó Ríordáin, B.
1969
"Portrait of a City's Past", *Illustrated London News* vol 254 no 6762, 8 March 1969, pp23-25

Ó Súilleabháin, S
*1976
"Beneath the Poulaphouca Reservoir", pp200-7 in C.Ó Danachair (ed) *Folk & Farm: Essays in Honour of A.T. Lucas*.... Royal Society of Antiquaries of Ireland, Dublin

Pailleur, J.-P. Le
*1947
"La pipe de bruyère", *Technique* vol XXII no 10 (December 1947) 663-7. Montreal

Painter, F.
*1964
"Uppowoc - Killer of White Men", *The Chesopiean* Vol II no 4 (August 1964) 87-89. Norfolk, Virginia

Pape, T.
*1920
"Newcastle-under-Lyme Pottery", *The Connoisseur* vol LVIII no CCXXX (October 1920) 67-72

Parker, A.C.
*1920
"The Archeological History of New York", *New York State Museum Bulletin* no 235-6 (July-August 1920)

Parsons, J.E.
*1964
"The Archaeology of the Clay Tobacco-Pipe in North-East England", *Archaeologia Aeliana* vol XLII (4th ser.) (1964) 231-54
*1966
"Clay Tobacco-Pipes", p.142 in Barbara Harbottle "Excavations at the South Curtain Wall of the Castle, Newcastle upon Tyne, 1960-61", *op. cit.* vol XLIV (4th ser.) (1966) 130-42
*1967
"Clay Tobacco Pipes", p.137 in Barbara Harbottle "An Excavation at the Gunner Tower, Newcastle upon Tyne, 1964" *op. cit.* vol XLV (4th ser.) (1967) 123-38
*1968a
"Clay Tobacco-Pipes", pp218-9 in Barbara Harbottle "Excavations at the Carmelite Friary, Newcastle upon Tyne, 1965 and 1967", *op. cit.* vol XLVI (4th ser.) (1968) 163-223
*1968b
"Archaeological Observations at Kepier Hospital, 1961", *Transactions of the Architectural and Archaeological Society of Durham and Northumberland* vol I (1968) 59-71
*1969
"The Finds", pp91 and 93-95 in Barbara Harbottle "The Town Wall of Newcastle upon Tyne: Consolidation and Excavation in 1968", *Archaeologia Aeliana* vol XLVII (4th ser.) (1969) 71-95

Patrouel, Mrs H.E. Jean le
1969
"Documentary Evidence and the Pottery Industry", *Medieval Archaeology* vol XII (1968) 101-26

Patterson, A.T.
1966
A History of Southampton, 1700-1914. Volume One: An Oligarchy in Decline, 1700-1835 (Southampton Record Series vol XI). Southampton University Press

Pawson, M.
*1969
"Clay Tobacco Pipes in the Knowles Collection", *Quarterly Bulletin, Archaeological Society of Virginia* vol 23 no 3 (March 1969) 115-47

Pearl, Valerie
1961
London and the Outbreak of the Puritan Revolution: City Government and National Politics 1625-43. Oxford University Press

Pearsall, R.
1973
Victorian Popular Music. David and Charles, Newton Abbot

Peck, R.M.
*1967
"Tobacco Pipes from Jamestown Island, Virginia", The *Chesopiean* vol 5 no 4 (August 1967) 115-8. Norfolk, Virginia

Penkala, Maria
1951a
European Pottery. Zivemmer, London
1951b
European Porcelain. Dekker, Amsterdam, and Zivemmer, London

Penn, W.A.
*1901
The Soverane Herbe: A History of Tobacco. Richards, London

Perry, B.D. and Clark, W.D.
*1971
"Fort Providence N.W.T.: A Preliminary Report of Excavations carried out July 1969", *The Musk-Ox* no 8 (1971) frontispiece and pp1-13. Saskatoon, Saskachewan

Petersen, E.T.
*1963a
Clay Pipes: A Footnote to Mackinac's History (Mackinac History, Leaflet no 1). Mackinac Island State Park Commission, Mackinac Island, Michigan
*1963b
"Some 18th Century Clay Pipes found at Mackinac", *Michigan Archaeologist* vol 9 no 1 (March 1963) 1-6

Peterson, J.
*1968
"'Clays' - The Answer to the Rat Race", *Confectionery and Tobacco News* 14 March 1968 pp13-14. London

Peterson, M.
*1965
History under the Sea: A Handbook for Underwater Exploration, 1969 ed. Smithsonian, Washington

Petsche, J.E.
*1974
The Steamboat Bertrand: History, Excavation, and Architecture (Publications in Archeology no 11, Department of The Interior, National Park Service). Washington

Pettersen, Anneken, and Alsvik, H.
*1944
"Pipefabrikken på Bragernes og den grunnlegger Jacob Boy" by AP (pp7-44) and "Pijpene fra Bragernesfabrikken" by HA (pp45-54), *Årbok Drammens Museum 1938-1943* (1944). Drammen, Norway
Pevsner, N.

1952
The Buildings of England: London (except the Cities of London and Westminster). Penguin, Harmondsworth, Middlesex
1958
The Buildings of England: North Somerset and Bristol. Penguin, Harmondsworth, Middlesex

Phillips, D.
*1970
"It's Hard Work running a Johnny A'thin'", *The Scots Magazine* vol 93 no 5 (n.s.) (February 1970) 439-46

Phillips, M.
*1918
[Note on pipemaking], *The Connoisseur* vol LI no 203 (July 1918) 165-7

Pholien, F.
*1906
La céramique au pays de Liège. Bénard, Liège

Pimlott, T.A.R.
1947
The Englishman's Holiday. Faber and Faber, London

Pinckard, A.
*1972
"Social History in Pipe-Stoppers", *Country Life* vol CLI no 3901 16 March 1972 pp635-6

Plot, R.
*1686
The Natural History of Staffordshire. The Theatre, Oxford

Poirier, D.A.
*1974
"A Discussion of Two Disturbed Clay Pipe Finds from Stamford, Connecticut", *Quarterly Bulletin, Archeological Society of Virginia* vol 29 no 1 (September 1974) 10-18

Pollins, H.
1961
"East London in Post-War Fiction", *East London Papers* vol 4 no 1 (April 1961) 15-24

Ponsford, M.
1971
"...And what about the Report?", *BARG Bulletin* vol 4 no 3 (December 1971) 71-73. Bristol

Porter, G.R.
*1832
TheCabinet Cyclopaedia conducted by the Rev Dionysuis Lardner...: Useful Arts: A Treatise on the Progressive Improvement and Present State of the Manufacture of Porcelain and Glass, chapt VII (pp99-103). Longman *et al*, London

Posnansky, M.
*1968
"The Excavation of an Ankole Capital Site at Bweyorere", *Uganda Journal* vol 32 no 2 (1968) 165-82. London

Pountney, W.J.
*1920
Old Bristol Potteries. Arrowsmith, Bristol

Powell, H.
1968
The Pottery Handbook of Clay, Glaze and Colour. Blandford Press, London

Powell, H.J.
1923
Glass-Making in England. Cambridge University Press

Power, M.J.
1965
"The Origins and Early Use of the Name 'Tower Hamlets'", *East London Papers* vol 8 no 2 (December 1965) 67-80

Prebble, J.
1968
The Darien Disaster. Secker and Warburg, London

Price, J.M.
1954
"The Rise of Glasgow in the Chesapeake Tobacco Trade, 1707-1775", reprinted from *William and Mary Quarterly* 3rd ser. vol XI (April 1954) 179-99 in P.L. Payne (ed) *Studies in Scottish Business History*, pp299-317. Kelley, New York

Price, T.G.H.
*1900
"Notes upon Some Early Clay Tobacco Pipes from the Sixteenth to the Eighteenth Centuries found in the City of London, in the Possession of the Author", *Archaeological Journal* vol LVII (1900) 224-40
*1901
"Notes upon Clay Pipes of the Seventeenth Century found in Bristol", *op. cit.* vol LVIII (1901) 342-9

Price, R. and Muckelroy, K.
*1974

"The Second Season of Work on the *Kennemerland* Site, 1973: An Interim Report", *The International Journal of Nautical Archaeology and Underwater Exploration* vol 3 no 2 (September 1974) 257-68

Priestly, H.
1966
London: The Years of Change. Muller, London

Pritchard, J.E.
*1899a
"Archaeological Notes for 1898", *Proceedings of the Clifton Antiquarian Club* vol IV (1897-99) 158-61. Bristol
*1899b
"Archaeological Notes for 1898", *ibid*. 257-63
*1900
Bristol Archaeological Notes for 1900", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol XXIII (1900) 262-7
*1901
Bristol Archaeological Notes for 1901: II", *op. cit.* vol XXIV (1901) 274-82
*1912
"Tobacco Pipes - Record of an Old Bristol Industry", *Bristol Times and Mirror* 22 October 1912
*1923
"Tobacco Pipes of Bristol of the XVIIth Century and their Makers", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol XLV (1923) 165-91
1926
"The Pithay", *op. cit.* vol XLVII (1926) 251-73

Pritchett, R.T.
*1890
Ye "Smokiana". Quaritch, London

Pudney. J.
1953
The Thomas Cook Story. Joseph, London

Puktörne, T.
*1968
"Tobakspipor från Gouda och Varberg", *Varbergs Museums Årsbok 1968* pp61-82. Varberg, Sweden

Quérard, J.-M
n.d.
La France littéraire, ou dictionnaire bibliographique..., vol VIII. Maisonneuve and Larose, Paris

Quesne-Bird, N. du
1972a
"Medieval and European Coins", *Transactions of the Bristol and*

Gloucestershire Archaeological Society vol XC (1971) 136-40
1972b
"Five Russian Seals from Bristol", _ibid_. 226-7

Quick, R.
*1906
"The Antiquity of the Tobacco Pipe", _The Antiquary_ vol XLII (1906) 20-23. London
*1910
"Artistic Tobacco Pipes", _The Connoisseur_ vol XXVIII no CXI (November 1910) 184-8

Quimby, G.I. jr
*1938
"Dated Indian Burials in Michigan", _Papers of the Michigan Academy of Science, Arts and Letters_ vol XXIII (1937) 63-72
*1939
"European Trade Articles as Chronological Indications for the Archaeology of the Historic Period in Michigan", _op. cit._ vol XXIV (1938) 25-31
*"1942
Indian Trade Objects in Michigan and Louisiana", _op. cit._ vol XXVII (1941) 543-51
*1966
Indian Culture and European Trade Goods. University of Wisconsin Press, Madison

Quinn, D.B.
1968
Sebastian Cabot and Bristol Exploration (Bristol Branch of the Historical Association Local History Pamphlets no 21). Bristol

Quiquerez, A.
*1864
"Vase et pipe romaine", _Indicateur d'histoire et d'antiquité_ vol X (1864) 30-32. Zürich
*1871
"Notice sur les forges primitives dans le Jura", _Mittheilungen der Antiquarischen Gesellschaft_ Band XVII Heft 4 (1871) 72-87. Zürich

Raban, A.
*1971
"The Shipwreck off Sharem-el-Sheikh", _Archaeology_ vol 24 no 2 (April 1971) 146-55. New York

Rada, P.
1960
The Book of Ceramics, 2nd rev. ed 1964. Spring Books, London

Radcliffe, F. and Knight, J.K.
*1974

"Excavations at Abergavenny, 1962-1969: II. Medieval and Later". The Monmouthshire Antiquary vol III pt II (1972-73) 65-103

Radford, C.A.R. and Hallam, A.D.
*1953
"The History of Taunton Castle in the Light of Recent Excavations", Proceedings of the Somerset Archaeological and Natural History Society vol XCVIII (1953) 55-96

Rahtz, P.A.
*1961
"Excavations by the Town Hall, Baldwin Street, Bristol", Transactions of the Bristol and Gloucestershire Archaeological Society vol LXXIX (1960) 221-50
*1964
"Excavations at Chalice Wall, Glastonbury", Proceedings of the Somerset Archaeological and Natural History Society vol 108 (1963-64) 145-63

Raistrick, A.
1950
Quakers in Science and Industry, 1968 ed. David and Charles, Newton Abbot
1972
Industrial Archaeology: An Historical Survey. Eyre Methuen, London

Raley, R.L.
1963
"Eighteenth-Century Irish Delftware", Antiques vol LXXXIII no 1 (January 1963) 106-09

Ralph, Elizabeth; and Williams, Mary E. (eds)
1968
The Inhabitants of Bristol in 1696 (Bristol Record Society's Publications vol XXV). Bristol

Randall, J.
*1877
The Clay Industries...on the Banks of th Severn:.... Madeley, Shropshire. (Recent but undated reprint by Shropshire County Library)
*1908
"Broseley Tobacco Pipes", The Victorian History of the Counties of England: Shropshire, volume I (1908) 440-2 plus illus. opposite p.442. Constable, London

Ratelband, K. (ed)
1953
Vijf dagregisters van het kasteel São Jorge da Mina (Elmina) aan de Goudkust 1645-47 (Werken uitgegevendoor de Linschoten-Vereeniging, LV). Nijkoff, The Hague

Rathje, W.L.
1974

"The Garbage Project: A New Way of Looking at the Problems of Archaeology", Archaeology vol 27 no 4 (October 1974) 236-41. New York

Rauschenberg, B.
1968
"A Sprigg Mould for 'Flowers for Fine Pottery'", The Conference for Historic Site Archaeology Papers 1967 vol 2 pt 1 (1968) 107-22

Ray, A.
1968
English Delftware Pottery in the Robert Hall Warren Collection, Ashmolean Museum, Oxford. Faber and Faber, London

RCHM(E) London (1930)
1930
Royal Commission on Historical Monuments (England): An Inventory of the Historical Monuments in London vol V: East London. HMSO, London

Reber, B.
*1900
"Note sur des pipes antiques", Bulletin de la societé d'histoire et d'archéologie de Genève vol II (1900) 164-8. Geneva
*1914a
"Les pipes antiques de la Suisse: nouvelles observations", Anzeiger fur Schweizerische Altertumskunde Band XVI Heft 3 (neue Folge) (1914) 194-106. Zürich
*1914b
"Les pipes antiques de la Suisse: nouvelles observations (suite)", op. cit. Band XVI Heft 4 (neue Folge) (1914) 287-303

Rector, W.K.
*1962
"Pipemakers of Lewes in the 18th and 18th Centuries", Sussex Notes and Queries vol XV no 9 (May 1962) 315-7

Reddaway, T.F.
1940
The Rebuilding of London after the Great Fire, 1951 ed. Arnold, London

Reed, K.W.
*1961
"The Report on Clay Tobacco Pipes from Back Hall", pp281-2 and 275 in K.J. Barton "Excavation at Back Hall, Bristol, 1958", Transactions of the Bristol and Gloucestershire Archaeological Society vol LXXXIX (1960) 251-86

Reeder, D.A.
1968
"A Theatre of Suburbs: Some Patterns of Development in West London", pp253-71 in H.J. Dyos (ed) The Study of Urban History. Arnold, London

Rees, A. (ed)
*1802-20
articles "Glass, common green bottle", "Pipe, Tobacco", and "Furnace used for baking Tobacco-pipes" in *The Cycopaedia; or Universal Dictionary of Arts, Sciences, and Literature*, 39 vols text 1819 and 6 vols plates 1820. London. (Actually published from 1802 onwards)

Register of the Privy Council of Scotland
*1613-19
(1st ser. 1877-98), vol XI (1613-19) 584-5, 604

Reineking-von Bock, Gisela (ed)
1971
Steinzeug (Kataloge des Kunstgewerbemuseums Köln, Band IV). Cologne

Renton, A.
1969
"New Architecture VI: A - St Katharine Dock House", *East London Papers* vol 12 no 1 (Summer 1969) 25-32

Rhodes, D.
1957
Clay and Glazes for the Potter, rev ed 1973. Chilton Book Company, Radnor, Pennsylvania
1969
Kilns: Design, Construction, and Operation. Pitman, London

Richmond, T.
1973
"The First International Congress on the Conservation of Indusrial Monuments: Sites and Soundings", *Guardian*, 28 August 1973. London

Rick, J.
1970
"Archaeological Investigations of the National Historic Sites Service, 1962-1966", *Canadian Historic Sites: Occasional Papers in Archaeology and History* no 1 (1970) 9-44. Ottawa

Riden, P.
1973
"Post-Post-Medieval Archaeology", *Antiquity* vol XLVII no 187 (September 1973) 210-6

Ries, N.
*1957
"Histoire du tabac en Europe", pp75-97 in *La manufacture de tabacs Heintz van Landewyck 1847-1957*. Bourg-Bourger, Luxembourg

Rigold, S.E.
*1967

"Excavations at Dover Castle 1964-1966", *Journal of the British Archaeological Association* vol XXX (3rd ser.) (1967) 87-121

Rimbaud, J.N.A.
1960 ed
Rimbaud: Oeuvres. Garnier frères, Paris

Rios, A. de los
*1913
"El Museo de antigüidades italicenses de la excelentísima Señora Doña Regla Manjón Vinda de Sánchez Bedoya, en Sevilla", *Revista des archivos, biblitecas y museos* año XVI tomo XXVII (Tercera época) (julio á diciembre 1912) 269-89. Madrid

Rippon, A.
*1917
"Ancient Devon Tobacco Pipes", *Devon and Cornwall Notes and Queries* vol LX (1917) 113-5. Exeter

Ristau, Toni
1975
"Mill Architecture in Paterson, N.J.: A Culmination of the Empirical Tradition in Construction", *Northeast Historical Archaeology* vol 4 no 1-2 (Spring 1975) 59-67. Rome, New York state

Rive, Alfred
*1926
"The Consumption of Tobacco since 1600", *The Economic Journal Economic History Series no 1* (January 1926) 57-75. London
*1929
"A Short History of Tobacco Smuggling", *op. cit. no 4* (January 1929) 554-69

Rix, M
1955
"Industrial Archaeology", *The Amateur Historian* vol 2 no 8 (October-November 1955) 225-9. London
1962
"Industrial Archaeology Progress Report 1962", *op. cit.* vol 5 no 2 (Winter 1962) 56-60
1967
Industrial Archaeology (Historical Association Pamphlets General Series no 65). The Historical Association, London

Robbins, R.W.
*1969
Pilgrim John Alden's Progress: Archaeological Excavations in Duxbury. The Pilgrim Society, Plymouth, Massachusetts

Robinson, H.
1970
"Cheshire River Navigation with Special Reference to the River Dee", *Journal*

of the Chester and North Wales Architectural Archaeological and Historical Society vol 55 (1970) 63-87

Robinson, P.M., and Spence, A.L.
*1937
The Robinson Family of Bolsover and Chesterfield. Privately printed

Rodgers, H.B.
1970
"The Market Area of Preston in the Sixteenth and Seventeenth Centuries", reprinted with a supplementary note from *Geographic Studies* vol 3 (1956) 46-55 in A.R.H. Baker, J.D. Hamshere, and J. Langton (eds) *Geographical Interpretations of Historical Studies* pp101-13. David and Charles, Newton Abbot

Rogers, B.
*1973
"When the Mud and Tradition Call", *Daily Telegraph Magazine* no 431, 2 February 1973, pp22-23, 25-26, 28, 32. London

Rogers, F.H.
*1949
The Bristol Craft Gilds during the 16th and 17th Centuries. Ph.D. thesis, University of Bristol

Rogers, M.F. jr
1963
The New England Glass Company 1818-1888 (guide to exhibition). Toledo Museum of Art, Toledo, Ohio

Rohmer, Sax (Arthur S. Ward)
1913-14
"Hassan of Aleppo, or The Quest for the Sacred Slipper", first published in serial form in *Short Stories* November 1913-June 1914, published in book for as *The Quest for the Sacred Slipper* 1919, Pearson, London, and Doubleday Page, Garden City, New York state

Ronayne, C.
*1903
"Some Ancient Pipes found in Youghal", *Journal of the Royal Society of Antiquaries of Ireland* vol XXXIII (1903) 421-2

Rosen, G.
1973
"Disease, Debility, and Death", pp625-67 (Chapt 27) in H.J. Dyos and M. Wolff (eds) *The Victorian City: Images and Realities*, vol 2. Routledge and Kegan Paul, London

Ross, J.F.S.
1955

Elections and Electors. Eyre and Spottiswood, London

Rougier, H.
*1966a
"Les pipes de Montereau" (pt 1) La revue de Moret et sa région 3e trimestre 1966 pp35-37. Paris
*1966b
"Les pipes de Montereau" (pt 11) op. cit. 4e trimestre 1966 pp51-54

Roux, A., Goulin, J., and La Chesnaye Desbois, F.A.A. de
*1762-64
Dictionnaire domestique portatif,..., 3 vols (vol 11 1764). Vincent, Paris
Rowlands, Marie B.
1968
"Industry and Social Change in Staffordshire 1660-1760: A Study of Probate and other Records of Tradesmen", Transactions of the Lichfield and South Staffordshire Archaeological and Historical Society vol IX (1967-68) 37-58

Rumbelow, D.
1975
The Complete Jack the Ripper. Allen, London

Russell, Elisabeth W.
*1966
"The 'Vanished American'", Expedition vol 8 no 4 (Summer 1964) 16-25. Philadelphia

Rutherford Davis, K. and Ashdown, J.H.
*1970
"A Seventeenth-Century Pottery Group and Associated Finds from a Well at Potters Bar", Hertfordshire Archaeology vol 2 (1970) 88-104

Rutkowska, J. and Żaryn,S.
*1955
"Wnętrze Kamienicy barokowej", pp177-97 and pls 37-38 in Szkice Staromiejskie. Wydawnictwo Sztuka, Warsaw

Rutsch, E.S.
1973
"Patersonian Archeology", Society for Industrial Archaeology Newsletter vol 2 no 5 (September 1973) 1. Washington
1975
"Salvage Archeology in Paterson, N.J.", Northeast Historical Archaeology vol 4 no 1-2 (Spring 1975) 1-16. Rome, New York state

Rutsch, E.S. and Skinner, Sally
*1972
"Research done at Fort Nonsense, Morristown National Historic Park, Morristown, New Jersey", Northeast Historical Archaeology vol 2 no 1 (Spring 1972) 35-43. Providence, Rhode Island

Rynne, E.
*1964
"Some Destroyed Sites at Shannon Airport, Co. Clare", Proceedings of the Royal Irish Academy vol 63 (C) (1964) 245-77
*1967
"Excavation of a Church-Site at Clondalkin, Co. Dublin", Journal of the Royal Society of Antiquaries of Ireland vol 97 (1967) 29-37

SA
1793
The Statistical Account of Scotland..., J. Sinclair (ed), vol 5. Creech, Edinburgh

Saastamo, Susan A.
*1971
The Application of a Functional Typology in the Analysis of Artifacts from the Excavation of Old Fort Colvile, Spring, 1970. M.A. thesis, University of Idaho, Moscow
*1973
"Artifact Analysis - 1970 Season", pp84-113 in Miscellaneous San Juan Island Reports 1970-1972. Department of Sociology and Anthropology, University of Idaho, Moscow

Sackett, R.R.
*1943
"Historical Clay Pipes of the Minnesota Area", The Minnesota Archaeologist vol IX no 3 (July 1943) 68-82

Salwen, B.
*1966
"European Trade Goods and the Chronology of the Fort Shantok Site", Bulletin of the Archeological Society of Connecticut no 34 (1966) 6-39
*1974
"An Archaeological Reconnaissance at the Pieter Claesen Wyckhoff House, Kings County, New York", Bulletin, New York State Archeological Association no 61 (July 1974) 27-38

Saltzman, L.F.
*1968
[Comment on D.R. Atkinson's "Sussex Pipes and Pipemakers: Further Notes" in SN&Q vol XVII no 1], Sussex Notes and Queries vol XVII no 2 (November 1968) 61

Samson, G. and Michaud, G.
*[1969]
Fouilles archéologiques, Fort Ingall, Lac Témiscouata, Cabano, Québec. Société d'archéologie de Rivière-du-Loup, Quebec province

Samson, Irene
*1954

"'Glasgow Clays' go round the World", *Scotland's Magazine* (February 1954) 9-12

Samuel, R.
1973
"Comers and Goers", pp124-60 (Chapt 5) in H.J. Dyos and M. Wolff (eds) *The Victorian City: Images and Realities*, vol 1. Routledge and Kegan Paul, London

Sanchez-Saavedra, E.M.
*1970
"From England to Holland (James I and the Gouda Pipemakers)", *Quarterly Bulletin, Archeological Society of Virginia* vol 24 no 3 (March 1970) 180

Sanford, Miss R.
*1968
Excavation in Church Street, Twickenham, 1966 (Borough of Twickenham Local History Society Paper no 12, October 1968). London

Sauvage, M.
*1955
"Illustrations et défense de la pipe en terre", *Revue des Tabacs* no 210 (été 1955) 25-26. Paris

Savage, G.
1954
Porcelain through the Ages, 1961 ed. Cassell, London

Savary des Bruslons, J.
*1759-65 ed
Dictionnaire universel de commerce, d'histoire naturelle, et des arts et métiers..., new ed 1759-65, 5 vols (vol IV 1761). Philibert, Copenhagen

Saywell, Ruby J.
1964
Mary Carpenter of Bristol (Bristol Branch of the Historical Association Local History Pamphlets no 9). Bristol

Schmitt, G.
*1957
"Pipes et pots à tabac", pp158-68 and 16 unpaginated illustrations in *La manufacture de tabacs Heintz van Landewyck 1847-1957*. Bourg-Bourger, Luxembourg

Schmitt, K. Jr
*1965
"Patawomeke: An Historic Algonkian Site", *Quarterly Bulletin, Archeological Society of Virginia* vol 20 no 1 (September 1965) 1-26

Schuetz, M.K.
*1969
The History and Archeology of Mission San Juan Capistrano, San Antonio, Texas: vol II, Description of the Artifacts and Ethno-History of the Coahuiltecan Indians (State Building Commission Archeological Program, Texas, Report no 11). Houston

Schumpeter, Elizabeth B.
1938
"English Prices and Public Finance, 1660-1822", Review of Economic Statistics vol XX (1938) 21-37. Cambridge, Massachusetts

Schuyler, R.L.
1974
"Lowellian Archeology", Society for Industrial Archeology Newsletter supplementary issue no 7 (December 1974) 3-4. Washington

Schwartz, L.D.
1973
"Occupations and Incomes in Late Eighteenth-Century East London", East London Papers vol 14 no 2 (December 1972) 87-100

Scott, A.R.
1929
Ball Clays (Memoirs of the Geological Survey of Great Britain, vol 31). London

Scott, H.
*1917
"Early Clay Tobacco Pipes found near Barton Road, Cambridge", Proceedings of the Cambridge Antiquarian Society vol XX (N.S. vol XIV) (1915-16) 147-68

Scott, Ameril and Scott, C.
*1966
Tobacco and the Collector. Parish, London

Searle, A.B. and Grimshaw, R.W.
1924
The Chemistry and Physics of Clays and other Ceramic Materials, 3rd ed 1959. Benn, London

Shannon, H.A. and Grebenik, E.
1943
The Population of Bristol (National Institute of Economic and Social Research, Occasional Papers 11). Cambridge University Press

Shaw, S.
1829
History of the Staffordshire Potteries;..., 1970 ed. David and Charles, Newton Abbot, and S.R. Publications, Wakefield

Shaw, T.
*1960
"Early Smoking Pipes in Africa, Europe, and America", *Journal of the Royal Anthropological Institute of Great Britain and Ireland* vol 90 pt 2 (1960) 272-305
*1962
"Chronology of Excavation at Dawu, Ghana", *Man* vol LXII (September 1962) item 217 pp136-7
*1964
[Smoking in Africa], *South African Archaeological Bulletin* vol 19 no 75 (September 1964) 75-76

Shepherd, W.P.
1956
Historical Atlas, 8th ed. Philip, London

Sheppard, T.
*1902
Early Hull Pipes and their Makers (Hull Museum Publications no 6), 1912 ed. Kingston-upon-Hull

Sherborne, J.W.
1965
The Port of Bristol in the Middle Ages (Bristol Branch of the Historical Association Local History Pamphlets no 13). Bristol

Shinnie, P.L. and Ozanne, P.C.
*1962
"Excavations at Yendi Dabari", *Transactions of the Historical Society of Ghana* vol VI (1962) 87-118

Silbering, N.J.
1923
"British Prices and Business Cycles, 1779-1850", *Review of Economic Statistics* vol V (October 1923) Supplement 2 pp210-61. Cambridge, Massachusetts

Simard, R.
*1970
Le site de Metabetchouan, Lac Saint-Jean: rapport préliminaire. Société d'archéologie du Saguenay, Chicoutimi, Quebec province

Simmons, J.
1973
"The Power of the Railway", pp277-310 (Chapt 12) in H.J. Dyos and M. Wolff (eds) *The Victorian City: Images and Realities*, vol 1. Routledge and Kegan Paul, London

Simmons, K.
*1962
"The Man with 800 Pipes", *Goodyear's Magazine* no 20 (1962) 2-3. Port

Elizabeth, New Jersey(?)

Simmons, W.S.
*1970
Cautantowwit's House. Brown University Press, Providence, Rhode Island

Sinclair, R.
1950
East London. Hale, London

Skinner, M.
*1972
"The Seafort Burial Site (FcPr100), Rocky Mountain House (1835-1861); Life and Death during the Fur Trade", The Western Canadian Journal of Anthropology vol III no 1 (1972) 126-45. Edmonton, Alberta

Sleen, W.G.N. van der
*1963
"Bead Making in Seventeenth Century Amsterdam", Archaeology vol 14 no 4 (Winter 1963) 260-3. New York

Smith, D.M.
1964
"Birmingham's Gun Quarter and its Workshops", Journal of Industrial Archaeology vol 1 no 2 (August 1964) 106-19 and pls 25-31
1965
The Industrial Archaeology of the East Midlands. David and Charles, Dawlish, and Macdonald, London
1966
"The Hatting Industry in Denton, Lancashire", Industrial Archaeology vol 3 no 1 (1966) 1-7, 33-35

Smith, G.
1750 ed
The Laboratory; or School of Arts:..., 3rd ed. Hodges and Astley, London

Smith, G.A.
1894
The Historical Geography of the Holy Land. 1966 Collins Fontana reprint of the 1931 (25th) ed

Smith, G.H.
*1960a
"Fort Pierre II (39ST217), a Historic Trading Post in the Oahe Dam Area, South Dakota", River Basin Surveys Papers nos 15-20, Bureau of American Ethnology Bulletin 176 pp87-158. U.S. Government Printing Office, Washington
*1960b
"Archeological Investigation at the Site of Fort Stevenson (32ML1), Garrison Reservoir, North Dakota", ibid. 159-238
*1968

Big Bend Historic Sites (Publications in Salvage Archeology no 9, River Basin Surveys, Smithsonian Institution). Lincoln, Nebraska
*1972
Like-a-Fishook Village and Fort Berthold, Garrison Reservoir, North Dakota (Anthropological Papers no 2, Department of The Interior, National Park Service). Washington

Smith, H.E.
*1860
"Notes on Clay Pipes: Their Uses and Forms, Makers and Dates", Transactions of the Historic Society of Lancashire and Cheshire vol XII (1859-60) 209-15

Smith, H.G.
*1949
Two Archeological Sites in Breyard County, Florida (Florida Anthropological Society Publications no 1, 1949)
*1951
"The Higgs Site", Eastern States Archeological Federation Bulletin no 10 (July 1951) 9-10
*1962
Archeological Excavation at El Morro, San Juan, Puerto Rico (Notes in Anthropology vol 6, Department of Anthropology, Florida State University). Tallahassee

Smith. H.Ll. (ed)
1930-35
The New Survey of London Life and Labour, 9 vols. King, London

Smith, M.Q.
1970
The Medieval Churches of Bristol (Bristol Branch of the Historical Association Local History Pamphlets no 24). Bristol

Smith, R.
1961
Sea Coal for London; History of the Coal Factors in the London Market. Longmans Green, London

Smith, T.H.
1959
"Re-readings: 2 - A Child of the Jago", East London Papers vol 2 no 1 (April 1959) 39-47

Smith, W.J.B.
*1854
[A collection of clay tobacco pipes], Archaeological Journal vol XI (1854) 181-2
*1869
[Note on a Gauntlet pipe bowl found at Cirencester], op. cit. vol XXVI (1869) 285-6

*1878
"On the So-called Fairy Pipes", Proceedings of the Dorset Natural History and Antiquarian Field Club vol 2 (1878) 28-31

Soil, E.
*1886
Potiers et faïenciers tournaisiens. Vasseur-Delmée, Tournai, Belgium

Solecki, R.S.
*1948
"A Seventeenth Century Fireplace at Maspeth, Long Island", Journal of the Washington Academy of Sciences vol 38 no 10 (1948) 324-9
*1950
"The Archeological Position of Historic Fort Corchaug, L.I., and its Relation to Contemporary Forts", Bulletin of the Archeological Society of Connecticut no 24 (1954) 3-40

Solon, M.L.
1892
Ancient Art Stoneware of the Low Countries and Germany, 2 vols. Chiswick Press, London

*Sorlin, F.
1972
"Paris", pp84-96 in Sir R. Matthew, J. Reid, and M. Lindsay (eds) The Conservation of Georgian Edinburgh. Edinburgh University Press

South, S.
*1962
"Kaolin Pipe Stem Dating from the Brunswick Town Ruins", Southeastern Archaeological Conference Newsletter vol 9 no 1 (1962) (Papers presented at the 1st and 2nd Conferences on Historic Site Archaeology) 22-25. Cambridge, Massachusetts
1963
"Clues to Colonial Clothing from the Brunswick Town Ruins", Newsletter, Brunswick County Historical Society vol III no 1 (February 1963). Shallott, North Carolina
*1965
"Anthropomorphic Pipes from the Kiln Waster Dump of Gottfried Aust - 1755-1771", Florida Anthropologist vol XVIII no 3 pt 2 (September 1965) (Papers presented to the 5th Conference on Historic Site Archaeology) 49-60
*1967
"The Ceramic Forms of the Potter Gottfried Aust at Bethabara, North Carolina, 1755-1771", The Conference on Historic Site Archaeology Papers 1965-1966 vol 1 (1967) 33-52
*1971
"Excavating the Fortified Area of the 1670 Site of Charles Towne, South Carolina", op. cit. 1969 vol 4 (1971) 37-60

Southey, R. (ed)
*1831
Attempts in Verse, by John Jones,...and an Introductory Essay on the Lives and Works of our Uneducated Poets. Murray, London

Spate, O.H.K.
1936
"The Growth of London A.D. 1600-1800", pp529-48 in H.C. Derby (ed) *An Historical Geography of England before A.D. 1800*. Cambridge University Press

Spence, G.C.
*1942
"Notes on Clay Pipes and Clay Pipe Makers in Cheshire", *Transactions of the Lancashire and Cheshire Antiquarian Society* vol LVI (1941-42) 45-66

Spence, Rhoda
*1957
"The Scotsman and his Pipe," *Scotland's Magazine* January *1957* pp18-21

Sprague, W.B.
*1937
"Clay Tobacco Pipes", *The Chronicle of the Early American Industries Association* vol 1 no 22 (March 1937) 1-2

Sprengel, P.N.
*1772
Handwerke und Künste in Tabellen, Neunte Sammlung, fortgesetzt von O.L. Hartwig. Realschulbuchhandlung, Berlin

Sprunck, A.
*1957
"Von Tabakspinnern, Tabakhändlern und Tabakrauchern im alten Luxemburg", pp43-74 in *La Manufacture des tabacs Heintz-van Landewyck 1847-1957*. Bourg-Bourger, Luxembourg

Staal, C.
1957
"Calenick Crucibles", *Royal Cornwall Polytechnic Society, The 124th Annual Report* (1957) 44-54

Standford, S.C.
*1958
"The Deserted Medieval Village of Hampton Wafer, Herefordshire", *Transactions of the Woolhope Naturalists' Field Club* vol XXXV (1958) 71-92. Hereford

Statutes of the Realm
*1696-98
Extracts from *The Statutes of the Realm* (1810-17, 1963 edition by Dawson, London), vol 7 pp138-447 (7 and 8 Gul. III c31, XLIX and 9 Gul. III c45, I)

Steane, J.M. and Kelsall, A.F.
*1962
"The Park, Moat and House at New Park, Latham, near Ormskirk", *Transactions of the Historic Society of Lancashire and Cheshire* vol 114 (1962) 73-98

Steen, C.R.
*1946
"Notes on some 19th Century Pima Burials", *The Kiva* vol 12 no 1 (November 1946) 6-10. Tucson, Arizona

Steers, J.A.
1946
The Coastline of England and Wales, 2nd ed 1964. Cambridge University Press

Steffel, R.V.
1970
"The Evolution of a Slum Control Policy in the East End, 1889-1901", *East London Papers* vol 13 no 1 (Summer 1970) 25-35

Sténuit, R.
*1974
"Early Relics of the VOC Trade from Shetland: The Wreck of the Flute *Lastdrager* lost off Yell, 1653", *The International Journal of Nautical Archaeology and Underwater Exploration* vol 3 no 2 (September 1974) 213-56
*1975
"The Treasure of Porto Santo", *National Geographic* vol 148 no 2 (August 1975) 260-75

Stephens, W.B.
1975
"Trade Trends at Bristol, 1600-1700", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol XCIII (1974) 156-61

Stevens, E.T.
*1876
Jottings on some of the Objects of Interest in the Stonehenge Excursion [of the Wiltshire Archaeological and Natural History Society], Thursday 24 August 1896. Devizes, Wiltshire

Stevens, F.G.
*1964
[Note on Sussex pipemakers], *Sussex Notes and Queries* vol XVI no 4 (November 1964) 132-3

Stevenson, W.I.
1973
"Some Aspects of the Geography of the Clyde Tobacco Trade in the Eighteenth Century", *Scottish Geographical Magazine* vol 89 no 1 (April 1973) 19-23

Stewart, T.D.
*1954
"A Method of Analysing and Reproducing Pipe Decorations", Quarterly Bulletin, Archeological Society of Virgina vol 9 no 1 (September 1954) 8 pages

Stewart, W.
1939
Jack the Ripper: A New Theory. Quality Press, London

Stiles, R.
1969
"The Old Market Sugar Refinery 1684-1908", BIAS Journal vol 2 (1969) 10-17. Bristol

Storey, G.F.
1969
"Aids to Recording (4): Industrial Sites", Industrial Archaeology vol 6 no 2 (May 1969) 157-63

Stone, G.F.
1909
Bristol - As It Was and As It Is. Bristol Evening News

Stow, J.
1908 ed
A Survey of London, 1603 ed; two vols, introd. and notes by C.L. Kingsford. Clarendon Press, Oxford

Straker, E.
1931
Wealden Iron, 1967 reprint. Chivers, Bath

Strong, H.W.
1891
"The Potteries of North Devon", Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art vol XXIII (1891) 389-93

Stuart, James (James I of Great Britain)
*1604
A Counter-blaste to Tobacco, 1954 ed. Rodale Books, Emmans, Pennsylvania, and London

Sturt, G.
1923
The Wheelwright's Shop Cambridge University Press, 1963 ed

Switzer, R.R.
*1969
Tobacco, Pipes, and Cigarettes of the Prehistoric Southwest (Special Report no 8, El Paso Archaeological Society). El Paso, Texas

Symonds, R.
1972
"Preservation and Perspectives in Industrial Archaeology", History vol 57 no 189 (February 1972) 82-88. London

Świechowska, A. assisted by Dukwicza, R.
*1955
"Warsztat garncarski z końca XVII wieku", pp151-9 and pls 17-20 in Szkice Staromiejskie. Wydawnictwo Sztuka, Warsaw

Talbot, E.J.
*1969
"Welsh Ceramics: A Documentary and Archaeological Survey", Post-Medieval Archaeology vol 2 (1968) 119-30

Tann, Jennifer and Smith, L.D.W.
1972
"Early Fireproof Housing in a Staffordshire Factory Village", op. cit. vol 6 (1972) 191-97

Tarn, J.N.
1968
"The Improved Industrial Dwellings Company", Transactions of the London and Middlesex Archaeological Society vol 22 pt I (1968) 43-59

Taylor, A.J.
1950
Raglan Castle, Monmouthshire, 1970 impression. HMSO, London

Tebbutt, C.F.
*1956
"Excavations of St Neots, Huntingdonshire", Proceedings of the Cambridge Antiquarian Society vol XLIX (1956) 79-87

Templeman, H.A.J. and Roest, L.
*1967
Zeven generaties Van der Want (Mededelingenblad 46 vrienden van de Nederlandse ceramiek, maart 1967). Amsterdam

Terstraeten, P.
[1967]
"Jonge Gouwenaars maken oude", Nieuwsblad voor pijprokers 6e jaargang nummer 5 [1967] 18-19. Amsterdam
*1969
"De man en zijn pijp", op. cit. 8e jaargang nummer 1 (januari-februari 1969) 1-2

Third SA
1958
The Third Statistical Account of Scotland, vol V Glasgow, J. Cunnison and

J.B.S. Gilfillan (eds). Collins, Glasgow

Thomas, B.B. jr and Burnett, R.M.
*1972
"A Study of Clay Smoking Pipes produced at a Nineteenth Century Kiln at Point Pleasant, Ohio", The Conference on Historic Site Archaeology Papers 1971 vol 6 (1972) 1-31

Thomas, J.
1971
The Rise of the Staffordshire Potteries. Kelley, New York

Thompson, E.P.
1963
The Making of the English Working Class, rev ed 1968. Penguin, Harmondsworth, Middlesex

Thompson, W.A. jr
*1969
"Pamplin Pipes - Part 1: Hand-made Red Clay Pipes", The Chesopiean vol 7 no 1 (February 1969) 13-21. Norfolk, Virginia

Thornhill, Lillian
*1973
"Medieval Site at Addington", The London Archaeologist vol 2 no 1 (Winter 1972) 8-11

Thursfield, R.
*1863
"On 'Old Broseleys'", The Reliquary vol III (1863) 79-83. London

Thursfield, T.H.
*1907
"Early Salopian Pipes", Transactions of the Shropshire Archaeological and Natural History Society vol VII (3rd ser.) (1907) 160-5

Thwaite, A.
1973
"The Chronology of the Bellarmine Jug", The Connoisseur vol 182 no 734 (April 1973) 255-62

Thwaites, R.G. (ed)
*1897
The Jesuit Relations and Allied Documents: Travels and Explorations of the Jesuit Missionaries in New France 1610-1791, vol III Acadia 1611-1616. Burrows Brothers, Cleveland

Till, R.
*n.d.
Wills of Bristol. Privately printed (ca.1954)

Tilley, E.W.
*1962
"Gravesend: Seventeenth-Eighteenth Century Finds", *Archaeologia Cantiana* vol LXXXVII (1962) 196-9
*1971
"Clay Pipes and the Archaeologist", *Kent Archaeological Review* vol 26 (1971-72) 171-5
*1972
"Excavations at No. 43 High Street, Gravesend", *Archaeologia Cantiana* vol LXXXVI (1971) 193-202

Timmins, S. (ed)
1866
Resources, Products, and Industrial History of Birmingham and the Midland Hardware District:..., 1967 ed. Cass reprints, London

Todd, G.F. (ed)
*1957
Statistics of Smoking in the United Kingdom, 4th ed 1966 (Research Paper 1, Tobacco Research Council). London
*1963
Tobacco Consumption in various Countries (Research Paper 6, Tobacco Research Council). London

Tolhausen, A. (compiler) and Tolhausen, L. (reviser)
1902 ed
Technologisches Wörterbuch in französischer, deutcher und englisher Sprache, 4th ed. Macmillan, New York

Tolkein, J.R.R.
1954
The Lord of the Rings, part I: The Fellowship of the Ring (Allen and Unwin, London)

Tomlinson, C. (ed)
*1952-54
Cyclopaedia of Useful Arts and Manufacturers, vol 2 (1854) pp449-51 "Pottery and Porcelain: Section IV - Manufacture of Tobacco-pipes". Virtue, London

Tongue, S.C.
1971
"Archives in East London", *East London Papers* vol 13 no 2 (Winter 1970-71) 102-5

Toulmin Smith, Lucy (ed)
1872
R. Ricart's The Maire of Bristowe is Kalendar (Camden Society's Publications vol V (n.s.). London

Towner, D.
*1963
The Leeds Pottery. Cory Adams and Mackay, London

Townsend, P.
1957
The Family Life of Old People: An Enquiry in East London, 1963 ed. Penguin, Harmondsworth, Middlesex

Treble, J.H.
1971
"Liverpool Working-Class Housing, 1801-51", pp165-220 (Chapt V) in S.D. Chapman (ed) The History of Working-Class Housing: A Symposium. David and Charles, Newton Abbot

Trevelyan, G.M.
1942
English Social History, 3rd ed 1946. Longmans Green, London

Triggs, A.
*1970
[Clay pipe factory discovered at Old Portsmouth], Industrial Archaeology vol 7 no 1 (February 1970) 117

Truman, C.S.
1963
The Hamlet of Mile End Old Town. Stepney Borough Council Public Libraries Department, London

Tuck, J.A.
*1971
Onondaga Iroquois Prehistory: A Study in Settlement Archaeology. Syracuse University Press, Syracuse, New York state

Turner, D.J.
*1967
"A Moated Site near Burstow Rectory", Surrey Archaeological Collections vol LXIII (1966) 51-65
*1971
"Clay Pipes from near Merton Priory", op. cit. vol LXVII (1970) 120-2

Turner, D.J. and Gilbert, A.S.
*1971
"Queen's Well, Carshalton", ibid. 37-53

Tyack, N.C.P.
*1935a
"The Tobacco Trade between Bristol and Virginia, 1600-1700" (pt 1) Wills's Works Magazine vol VII no 52 (February 1935) 144-8. Bristol
*1935b
"The Tobacco Trade between Bristol and Virginia, 1600-1700" [pt 2] op. cit. vol VII no 53 (May 1935) 193-200

*1935c
"The Tobacco Trade between Bristol and Virginia, 1600-1700" [pt 3] *op*. *cit*. vol VII no 54 (August 1935) 234

Tylecote, R.F.
1972
"A Contribution to the Metallurgy of 18th- and 19th-Century Brass Pins", *Post-Medieval Archaeology* vol 6 (1972) 183-90

Tyrer, F. (transcriber and annotator) and Bagley, J.J. (ed)
1970
The Great Diurnal of Nicholas Blundell of Little Crosby, Lancashire, vol II 1712-19. Record Society of Lancashire and Cheshire
1972
op. *cit*., vol III 1720-28

Unwin, G.
1904
Industrial Organization in the 16th and 17th Centuries, 1957 ed. Cass reprint, London
1908
The Gilds and Companies of London, 1973 ed. Cass reprint, London
1927
Studies in Economic History: The Collected Papers of George Unwin, ed R.H. Tawney. Macmillan, London

Unwin, G., Hulme, A., and Taylor, G.
1924
Samuel Oldknow and the Arkwrights: The Industrial Revolution at Stockport and Marple. Manchester University Press

Ure, A.
*1848
A Dictionary of Arts, Manufacturers, and Mines:...to which is appended a Supplement of Recent Improvements to the Present Time, 3rd ed 1848 one vol, "Tobacco-Pipes" pp1262-3. Appleton, New York and Philadelphia
*1853
A Dictionary of Arts, Manufactures, and Mines:..., 4th ed 1853, 2 vols, "Tobacco-Pipes" vol II pp867-9. Little Brown, Bostol
*1860
Ure's Dictionary of Arts, Manufactures, and Mines:..., 5th ed 1860, ed by Robert Hunt, 3 vols, "Tobacco-Pipes" vol III pp909-11. Longmans *et* *al*, London

Van Dale groot woordenboek der Nederlandse taal...
1970 ed
Van Dale groot woordenboek der Nederlandse taal met een unitvoerig supplement, 2 vols, by C. Kruyskamp. Nijkoff, The Hague

VanStone, J.W.
*1955
"Exploring the Copper River Country", *Pacific Northwest Quarterly* vol 46 no 4 (October 1955) 115-23. Seattle
*1968
Tikchik Village: A Nineteenth Century Riverine Community In Southwestern Alaska (Fieldiana: Anthropology vol 56 no 3, Field Museum of Natural History). Chicago
*1972
Nushagak: An Historic Trading Center in Southwestern Alaska (*op. cit*. vol 62)

VanStone, J.W. and Townsend, Joan B.
*1970
Kijik: An Historical Tanaina Indian Settlement (*op. cit*. vol 59)

VCH Lancs
1911
The Victoria History of the Counties of England: Lancaster, Volume Five, W. Farrer and J. Brownbill (eds). Constable, London

VCH Middx
1911
The Victoria History of the Counties of England: Middlesex, Volume Two, W. Page (ed). Constable, London

VCH Surrey
1905
The Victoria History of the Counties of England: Surrey, Volume Two, H.E. Malden (ed). Constable, London

Verlaine, P.
1962 ed
Oeuvres poétiques complètes. Bibliothèque de la Pléiade, Paris

Vogel, R.M.
1969
"On the *Real* Meaning of Industrial Archaeology", *Historical Archaeology 1969* vol III, 87-93

Vogel, R.M. (ed)
1973
Society for Industrial Archeology Newsletter vol 2 no 5 (September 1973). Washington, D.C.

Voisin, L. (ed)
*[1950]
Les pipes en terre de Givet. Privately published

Volpi, C.P. De, and Winkworth, P.S.

1963
Montreal - A Pictorial Record 1535-1885, 2 vols. Dev-Sco Publications, Montreal

Walker, I.C.
*1965
"Some Thoughts on the Harrington and Binford Systems for statistically dating Clay Pipes", Quarterly Bulletin, Archeological Society of Virginia vol 20 no 2 (December 1965) 60-64
*1966a
"TD Pipes - A Preliminary Study", op. cit. vol 20 no 4 (July 1966) 86-102
*1966b
"Clay Pipes from Louisbourg", Eastern States Archeological Federation Bulletin no 25 (May 1966) 14-15
*1966c
"A Pipemaker's Mark from Gouda, The Netherlands - Then and Now", American Antiquity vol 31 no 5 pt 1 (July 1966) 747-8
*1966d
[Montreal clay pipes], Gazette 5 October 1966 p. 6. Montreal
*1967a
[Quebec City clay pipes], Quebec Chronicle-Telegraph 3 April 1967 p.4
*1967b
"Clay Pipes from the Fortress of Louisbourg, Nova Scotia, Canada", The Conference on Historic Site Archaeology Papers 1965-1966 vol 1 (1967) 96-99
*1967c
"Clay Pipes from the Fortress of Louisbourg", Archaeology vol 20 no 3 (June 1967) 187-93. New York
*1968a
"Statistical Methods for Dating Clay Pipe Fragments", Post-Medieval Archaeology vol 1 (1967) 90-101
*1968b
Reviews of English Clay Tobacco Pipes (A.H. Oswald) and "The Making of Clay Pipes in Leicester" offprint from Transactions of the Leicestershire Archaeological Society vol XL (J.A. Daniell) in Industrial Archaeology vol 5 no 3 (August 1968) 300-2
*1969
[Ford family of pipemakers], The London Archaeologist [vol 1 no 2] (Spring 1969) 47-48
*1970a
[The pipe makers], pp100-5 in C.C. Kennedy The Upper Ottawa Valley. Renfrew County Council, Pembroke, Ontario
*1970b
"Dating Clay Pipes and the Galphin Trading Post at Silver Bluff, South Carolina", Florida Anthropologist vol 23 no 4 (December 1970) 159-62
*1971a
""Note on the Bethabara, North Carolina, Tobacco Pipes", The Conference on Historic Site Archaeology Papers 1969 vol 4 (1971) 26-36
*1971b
"The Manufacture of Dutch Clay Tobacco-Pipes", Northeast Historical

Archaeology vol 1 pt 1 (Spring 1971) 4-17. Providence, Rhode Island

*1971c
"An Archaeological Study of Clay Pipes from the King's Bastion, Fortress of Louisbourg", Canadian Historic Sites: Occasional Papers in Archaeology and History no 2 (1971) 55-122. Ottawa

*1971d
"Nineteenth-Century Clay Tobacco Pipes in Canada", Ontario Archaeology Publication no 16 (1971) 19-35 - this appeared with a disastrous set of printer's errors: it must be read in conjunction with the corrections and additions noted in Arch Notes: Monthly Newsletter of the Ontario Archaeological Society no 72-3 (March 1972) 8-11

*1971e
"A Clay Tobacco Pipe from Bath", Somerset Archaeology and Natural History vol 114 (1970) 100

*1971f
"A Chichester Tobacco-Pipe Maker", Post-Medieval Archaeology vol 4 (1970) 167

1971g
"Ecclesiastical Archaeology - A Review Article", Industrial Archaeology vol 8 no 4 (November 1971) 392-7

*1972a
"Some Notes on the Westminister and London Tobacco-Pipe Makers' Guild", Transactions of the London and Middlesex Archaeological Society vol 23 pt 1 (1971) 73-89

*1972b
"Sir Walter Ralegh Pipes", Quarterly Bulletin, Archeological Society of Virginia vol 26 no 4 (June 1972) 161-4 and cover illustration

*1972c
The Bristol Clay Tobacco-Pipe Industry. City Museum, Bristol (1971)

*1973a
"Note on a London Pipemaker", Transactions of the London and Middlesex Archaeological Society vol 23 pt 1 (1972) 214

*1973b
"Cajote - A France-African Word for a Smoking Pipe?", West African Journal of Archaeology vol 3 (1973) 239-43. Ibadan, Nigeria

*1973c
"Three Somerset Pipemakers", Somerset Archaeology and Natural History vol 116 (1972) 114-5

*1973d
"Note on a Wiltshire Pipemaker", Wiltshire Archaeological and Natural History Magazine vol 67 (1972) 163

*1974a
"Notes on Eight Gloucestershire Pipemakers", Transactions of the Bristol and Gloucestershire Archaeological Society vol XCII (1973) 139-44

*1974b
"Note on a Hereford Pipemaker", Transactions of the Woolhope Naturalists' Field Club vol XL pt 3 (1972) 388-9. Hereford

*1975a
"The American Stub-Stemmed Clay Tobacco-Pipe: A Survey of its Origins, Manufacture, and Distribution", The Conference on Historic Site Archaeology

Papers 1974 vol 9 (1975) 94-128
*1975b
"A Dunkirk-Made Clay Pipe from the Fortress of Louisbourg, Nova Scotia", Post-Medieval Archaeology vol 9 (1975) 231-3 and pl XXXII
*1975c
"European Smoking-Pipes", pp235-6, 163 in G. Connah The Archaeology of Benin: Excavations and other Researches in and around Benin City, Nigeria. Clarendon Press, Oxford
*in press 1
"The Potential Use of European Clay Tobacco-Pipes in West African Archaeological Research", West African Journal of Archaeology
*in press 2
"Churchwarden Clay Tobacco-Pipes and the Southern Pipemaking Family of Broseley, Shropshire", Post-Medieval Archaeology
*in press 3
"Alternative Uses for Clay Tobacco-Pipes and Tobacco-Pipe Fragments: Some Notes", Historical Archaeology
*MS 1
A Study of some Clay Pipes from Fort Meductic, New Brunswick, Canada. Manuscript report awaiting publication in Canadian Historic Sites: Occasional Papers in Archaeology and History
*MS 2
Château St-Louis: Archaeological Furnishings Report Part 1 vol 8, Clay Tobacco Pipes. Manuscript report, Fortress of Louisbourg Restoration Section, Louisbourg
*MS 3
Clay Tobacco-Pipes from Yuquot, British Columbia. Manuscript report awaiting publication in Canadian Historic Sites: Occasional Papers in Archaeology and History

Walker, Llyn de S.
1966
"Miners' Picks and Dental Picks: Excavations at the Fortress of Louisbourg", Eastern States Archeological Federation Bulletin no 25 (May 1966) 13-14
*1968
"Field Report on an Excavation at Louisbourg, Nova Scotia, Canada", Quarterly Bulletin, Archeological Society of Virgina vol 22 no 3 (March 1968) 99-116
*1970
"Observations on Clay Pipe Pieces from the Tailrace Bay Site", pp282-8 and 268-9 in W.J. Mayer-Oakes Archaeological Investigations in the Grand Rapids, Manitoba, Reservoir, 1961-1962 (University of Manitoba Department of Anthropology Occasional Papers no 3). Winnipeg

Walker, I.C. and Walker, Llyn de S.
*1969
"McDougall's Clay Pipe Factory, Glasgow", Industrial Archaeology vol 6 no 2 (May 1969) 132-6, 139-41, 145-6

Waller, T.
*1747
A General Description of all Trades,... Privately printed

Wallis, A.
*1889
"A Barnstaple Tobacco-Pipe", Notes and Gleanings vol II no 18 15 June 1889 pp87-88. Exeter

Ward, D.
1962
"The Pre-Urban Cadaster and the Urban Pattern of Leeds", reprinted from Annals of the Association of American Geographers vol 52 (1962) 150-66 in A.R.H. Baker, J.D. Hamshere, and J. Langton (eds) Geographical Interpretations of Historical Sources pp315-33. David and Charles, Newton Abbot

Warrillow, E.J.D.
1960
A Sociological History of Stoke-on-Trent. Etruscan Publications, Hanley, Stoke-on-Trent.

Waterman, D.M.
1960
"Excavations at Lismahon, Co. Down", Medieval Archaeology vol III (1959) 139-76
1970
"Somersetshire and other Foreign Building Stone in Medieval Ireland, c.1175-1400", Ulster Journal of Archaeology vol 33 (3rd ser.) (1970) 63-75

Waters, I.
n.d.
The Wine Trade of the Port of Chepstow (reprinted from Presenting Monmouthshire vol 1 no 16). The Chepstow Society, Chepstow, Monmouthshire

Watkins, A.
*1960
North Devon Pottery and its Export to America in the 17th Century (Paper 13, Contributions from the Museum of History and Technology, United States National Museum Bulletin 225). Smithsonian, Washington
*1968
The Cultural History of Marlborough, Virginia (United States National Museum Bulletin 253). Smithsonian, Washington

Watkins, Elizabeth
*1966
"Clay Pipes found in Dorset", Proceedings of the Dorset Natural History and Archaeological Society vol 88 (1966) 216-33

Watkins, Lura W.
*1950

Early New England Potters and their Wares. Harvard University Press, Cambridge, Massachusetts

Weatherill, Lorna
1970
"Technical Change and Potters' Probate Inventories 1660-1760", *Journal of Ceramic History* no 3 (1970) 3-12. Stafford

Weatherhill, Lorna and Edwards, Rhoda
*1972
"Pottery Making in London and Whitehaven in the Late Seventeenth Century", *Post-Medieval Archaeology* vol 5 (1971) 160-81

Webb, D. and Carpenter, Alison (eds)
1974
The Eastern Fringe of the City: A Photographic Tour of the Bishopsgate Area in 1912. Bishipsgate Institute, London

Weber, C.
*1962
Weber's Guide to Pipes and Pipe Smoking. Cornerstone Library, New York

Webster. D.B.
1968
The Brantford Pottery, 1849-1907 (Royal Ontario Museum Art and Archaeology *Occasional Paper 13*). Toronto
1971
The William Eby Pottery, Conestogo, Ontario, 1855-1907 (*op*. *cit*. Paper 25)

Webster, G. and Barton, K.J.
*1957
"An 18th Century Rubbish Pit, Trinity Street, 1953", *Journal of the Chester and North Wales Architectural, Archaeological and Historical Society* vol 44 *(1957) 19-28*

Welch, E. (ed)
1967
Plymouth Building Accounts of the Sixteenth and Seventeenth Centuries (Devon and Cornwall Record Society vol 12 (n.s.)). Exeter

Weld, I.
*1832
Statistical Survey of the County of Roscommon. Graisberry, Dublin

Wells, C.
*n.d.
The History of Carleton Island. Manuscript (ca.1967) from P.P. Pratt, Department of Anthropology, State University College, Oswego, New York state

Wells, C. and Winstone, R. (ed)
1966

Bristol's History. Privately printed

Wells, P.K.
*1970
"The Execavation of a 19th-Century Clay Tobacco Pipe Kiln in Boston, Lincolnshire", Lincolnshire History and Archaeology vol 1 no 5 (1970) 21-27 and figs 1-4
*1972
"The Clay Pipe Makers of Boston", History of Boston Series no 8 (1972) 12-19
*1974
Lincolnshire Clay Pipe Makers, Manuscript, Lincoln City and County Museum (copy in writer's possession has additional entries supplied by author)

Weslager, C.A.
*1954
"The Excavation of a Colonial Log Cabin near Wilmington, Delaware", Bulletin of the Archaeological Society of Delaware vol 6 no 1 (1954) 15-25

West, G. (ed)
*1953
A History of Smoking from Elizabeth I to Elizabeth II. Published by Tobacco, London

Wheeler, R.E.M.
1954
Archaeology from the Earth, 1956 ed. Penguin, Harmondsworth, England

Whitehouse, D.
*1966
"The Bore Diameter of Clay Tobacco Pipes made at Bristol between 1620 and 1850", Transactions of the Bristol and Gloucestershire Archaeological Society vol LXXXV (1966) 202-6

Whitwell, J.B. and Wilson, Mrs C.M.
*1969
"Archaeological Notes, 1968", Lincolnshire History and Archaeology no 4 (1969) 99-119

Wilcox, R.
1971
"Bath Breweries in the Latter Half of the Eighteenth Century", A Second North Somerset Miscellany (1971) 23-31

Wilde, W.R.
*1863
A Descriptive Catalogue of the Antiquities...in the Museum of the Royal Irish Academy. Dublin

William, T.S.
1936a

"Bath and the Navigation of the Avon", *Somerset Archaeological and Natural History Society: Proceedings of the Bath and District Branch* 1936 pp139-40

1936b

River Navigation in England 1600-1750, 1964 ed. Cass reprints, London

1937a

"Chester and the Navigation of the Dee", *Journal of the Chester and North Wales Architectural, Archaeological and Historical Society* vol XXXII no 1 (1937) 64-67

1937b

"The River Navigation and Trade of the Severn Valley, 1600-1750", *Economic History Review* vol VIII no 1 (1937) 68-79

1938

The English Coasting Trade, 1967 ed. Manchester University Press

Williams, A.F.

1963

"Bristol Port Plans and Improvement Schemes of the Eighteenth Century", *Transactons of the Bristol and Gloucestershire Archaeological Society* vol LXXXI (1962) 138-188

Williams, D.T.

1936

"Medieval Foreign Trade: Western Ports", pp266-97 in H.C. Derby (ed) *An Historical Geography of England before A.D. 1800*. Cambridge University Press

Williams, I.J.

*1932

"The Nantgarw Pottery and its Products: An Examination of the Site", *Archaeologia Cambrensis* vol LXXXVII (1932) 108-43

Williams, Marjorie

*1973

"The Tobacco Tag Era", *The Antiques Journal* vol 28 no 3 (March 1973) 28-29. Dubuque, Iowa

Williams, M.I.

*1962

"Cardiff - Its People and its Trade, 1660-1720", *Morgannwg* vol VII (1962) 74-97. Cardiff

Williamson, J.A.

1962

The Cabot Voyages and Bristol Discovery under Henry VII (Hakluyt Society Works vol CXX (2nd ser.)). Cambridge University Press

Willis, A.J. (compiler) and Hoad, Elizabeth (ed)

*1971

Portsmouth Record Series: Borough Sessions Papers 1653-1688 (Portsmouth Record Series vol 1). Phillimore, London and Chichester

Willis, A.J. (compiler) and Merson, A.L. (ed)
*1968
A Calendar of Southampton Apprenticeship Registers 1609-1740 (Southampton Record Series vol XII). Southampton University Press

Willmot, F.
*(1969a)
"Flamsteed's Well", Darenthis no 4 1969 6-15. Lewisham Natural History Society, London
*(1969b)
"45 The Village, Charleton", ibid. 16-26

Willmott, P.
1966
Adolescent Boys of East London, 1969 ed. Penguin, Harmondsworth, Middlesex

Wilson, C.
1975
"Introduction", pp11-29 in D. Rumbelow The Complete Jack the Ripper. Allen, London

Wilson, C.I. jr
*1975
"The Nature and Scope of Archeological Observation", Northeast Historical Archaeology vol 4 no 1-2 (Spring 1975) 39-43. Rome, New York state

Wilson, D.
*1851a
"Notice of Discoveries of 'Celtic Pipes' in the Vicinity of Edinburgh; with some Remarks on the Period to which they belong", Proceedings of the Society of Antiquaries of Scotland vol I (1851-54) 182
*1851b
The Archaeology and Prehistoric Annals of Scotland. Sutherland and Knox, Edinburgh
*1863
Prehistoric Annals of Scotland, vol II. McMillan, London and Cambridge

Wilson, J.P.
*1967
"Excavations at Fort Fillmore", El Palacio vol 74 no 2 (Summer 1967) 27-41. Santa Fe, New Mexico

Wilson, M.L.
*1968
"Two Historic Burials in the Three Forks Locale", Bulletin of the Oklahoma Anthropological Society vol XVII (November 1968) 73-86

Wilson, R. (under pseudonym Anthony Suffill)
*1964
"Clay Pipe Archaeologist", The Deesider no 1 (December 1964) 38. Chester

*1965
"The Claverton Bowls", *op. cit.* no 13 (November 1965) 17 and 20

Wilson, R.L.
*1961
"Clay Tobacco Pipes from Fort Laramie", *Annals of Wyoming* vol 33 no 3 (October 1961) 120-34
*1966
"Clay Pipes from Fort Union, N. Mexico", *El Palacio* vol 73 no 1 (Spring 1966) 32-40. Santa Fe, New Mexico
*1971
Clay Tobacco Pipes from Fort Laramie National Historic Site and Related Locations. National Park Service, Department of The Interior, place of publication not given

Wilson, W.
1814
The History and Antiquities of Dissenting Churches and Meeting Houses..., vol IV. Privately printed

Winfree, R.W.
*1967
"The T. Gray Haddon Site, King William County, Virginia (44KN4)", *Quarterly Bulletin, Archeological Society of Virginia* vol 22 no 1 (September 1967) 2-26
*1969a
"Newington, King and Queen County", *op. cit.* vol 23 no 4 (June 1969) 160-224
*1969b
"A Comment upon Indian Brown Clay Pipes", *op. cit.* vol 24 no 1 (September 1969) 79

Winstone, R.
1957a
Bristol As It Was 1939-1914. Privately printed
1957b
Bristol As It Was 1914-1900. Privately printed
1958
Bristol To-Day. Privately printed
1960
Bristol in the 1890's. Privately printed
1961
Bristol in the 1940's. Privately printed
1962
Bristol in the 1880's. Privately printed
1964
Bristol 1950-1943. Privately printed
1965
Bristol As It Was 1879-1874. Privately printed
1966
Bristol As It Was 1874-1866. Privately printed
1967

Bristol As It Was 1866-1860. Privately printed
1968a
Bristol Fashion. Privately printed
1968b
Bristol in the 1850's. Privately printed
1969
Bristol as it was 1953-1956. Privately printed
1970a
Bristol's Earliest Photographs. Privately printed
1970b
Bristol Tradition. Privately printed

Wise, M.J.
1951
"On the Evolution of the Jewellery and Gun Quarters in Birmingham", *Transactions and Papers, Institute of British Geographers* publication no 15 (1949) 57-72

Wish, H.
1960
The American Historian: A Social-Intellectual History Writing of the American Past. Oxford University Press, New York

Wohl, A.S.
1971
"The Housing of the Working Classes in London, 1815-1914", pp13-54 (Chapt I) in S.D. Chapman (ed) *The History of Working-Class Housing: A Symposium*. David and Charles, Newton Abbot

Wood, G.H.
1899
"The Course of Average Wages between 1790 and 1860", *The Economic Journal* vol LX (1899) 588-92. London

Woodfield, P.
1966
"Yellow Glazed Wares of the Seventeenth Century", *Birmingham Archaeological Society Transactions and Proceedings* vol 81 (1966) 78-87

Woodham Smith, C.
1962
The Great Hunger, Ireland 1845-9. Hamilton, London

Woodman, H.
1973
"The Blackburn Battleships", *Wings* vol 3 no 4 (August 1973) 38-49. New York

Woodward, A.
*files
information from files of A. Woodward, Amon Carter Museum of Western Art,

Fort Worth, Texas, made available August 1969

Woolrich, A.P.
1973
Review of *Industrial Archaeology in Britain* (R.A. Buchanan) in *BARG Bulletin* vol 4 no 9 (December 1973) 267-8. Bristol
1974
"An American in Gloucestershire and Bristol: The Diary of Joshua Gilpin, 1796-7", *Transactions of the Bristol and Gloucestershire Archaeological Society* vol XCII (1973) 169-89

Woolworth, A.R. and Wood, W.R.
*1960
"The Archeology of a Small Trading Pose (Kipp's Post), 32MN1, in the Garrison Reservoir, North Dakota", *River Basin Surveys papers nos 15-20, Bureau of American Ethnology bulletin 176* pp247-305. U.S. Government Printing Office, Washington

Wray, C.F.
*1973
Manual for Seneca Iroquois Archeology. Cultures Primitive, Honeoye Falls, New York State. (Book and folders of colour slides)

Wray, C.F. and Schoff, H.L.
*1953
"A Preliminary Report on the Seneca Sequence in Western New York - 1550-1687", *Pennsylvania Archaeologist* vol XXIII no 2 (July 1953) 53-63

Wright, H.
*1881
[Note on a Robert Tippet pipe], *The American Antiquarian and Oriental Journal* vol III (October 1880-October 1881) 329. Chicago

Wright, J. (ed)
1898-1905
The English Dialect Dictionary..., 6 vols. Frowde, London and Oxford

Wright, J.V.
*1969
"The Michipicoten Site", *National Museums of Canada Bulletin 224, Anthropological Series no 82, Contributions to Anthropology VI: Archaeology and Physical Anthropology* (1969) 1-85. Ottawa
*1973
"The Dougall Site", *Ontario Archaeology* Publication no 17 (1972) 2-23

Wright, N.R.
*1970
"Tobacco Manufacturing in Lincolnshire", *Industrial Archaeology* vol 7 no 1 (February 1970) 1-18 and 25-39

Wyckoff, D.G, and Barr, T.P.
*1968
The Posey Site (Wg-19): A Historic Site in the Three Forks Locale, Eastern Oklahoma (Archaeological Site Report no 10, Oklahoma River Basin Survey, University of Oklahoma Research Institute). Norman

Wylie, Elizabeth A.
*1968
Clay Pipes from Fort Gaspereaux, N.B. Manuscript, National Historic Parks and Sites Branch, Parks Canada, Ottawa
*1969
Research on Clay Pipes. Paper given at Second Annual Meeting of the Canadian Archaeological Association, Toronto, March 1969 (copy from author)
*1971
"Clay Pipes from Fort Wellington", pp77-81 (Appendix B) in S.G. Baker Fort Wellington Archaeology 1968 (Manuscript Report no 22, National Historic Parks and Sites Branch, Parks Canada. Ottawa

York, R.N.
*1965
"Excavations at Bui; A Preliminary Report", West African Archaeological Newsletter no 3 (1965) 18-21 Ibadan, Nigeria
*1973
"Excavations at New Buipe", West African Journal of Archaeology vol 3 (1973) 1-189. Ibadan, Nigeria

Young, A.H.
1965
"The Pemaquid Dig: A Preliminary Report", Maine Archaeological Society Bulletin no 4 (October 1965) 1-6

Young, E. and Young, W.
1956
Old London Churches. Faber and Faber, London

Young, M. and Willmott, P.
1957
Family and Kinship in East London, 1962 ed. Penguin, Harmondsworth, Middlesex

Youngston, A.J.
1966
The Making of Classical Edinburgh 1750-1840. Edinburgh University Press

Zacharchuk, W.
*1973
"The House that Knight built", The Beaver Outfit 304 no 2 (Autumn 1973) 12-15. Winnipeg

Zacharchuk, W. and Rick, J.
*1969
"The Mallorytown Wreck", Historical Archaeology 1969 vol III pp7-11

Żurowski, T.
*1949
"Fajki gliniane", Ochrona Zabytków vol 4 no 1-2 (1951) 39-57. Warsaw

Personal Communications

Adam, R.J.
*letter from R.J. Adam, Department of Medieval History, University of St. Andrews, dated 26 June 1970

Adams, Mrs L.
*letter from Mrs. L. Adams, Knowle, Bristol, dated 28 October 1971

Alexander, L.T.
*letter and drawings from L.T. Alexander, Archaeological Society of Delaware, Wilmington, dated 12 December 1970
*letter and drawings ditto dated 11 July 1971
*letter, rubbing, and photograph ditto dated 19 November 1971
*letter, photograph, and plaster cast ditto dated 11 April 1972 and letter and photograph dated 19 april 1972
*letter and drawings ditto dated 17 December 1972
*letter and plaster-cast ditto dated 14 January 1973
*letter and drawing ditto dated 22 January 1974
*letter and photographs ditto dated 8 February 1974
*letter and drawing ditto dated 23 April 1974
*letter and photographs ditto dated 23 August 1974
*letter and drawing ditto dated 23 October 1974
*letter, slides, and drawing ditto dated 23 February 1975

Allen, J.
*letter from J. Allen, The Research School of Pacific Studies, Department of Anthropology (Prehistory), Australian National University, Canberra, dated 11 March 1968
*letter and photograph ditto dated 18 March 1968
*letter ditto dated 29 October 1968

Allen, J. and Macknight, C.C.
*letter and drawing from J. Allen and C.C. Macknight, The Research School of Pacific Studies, Department of Anthropology (Prehistory), Australian National University, Canberra, dated 29 March 1968

Alfred Dunhill Ltd.
*letter from Alfred Dunhill Ltd, London, dated 30 April 1974

American Clay Pipe Works, New York
*letter and current pricelist from American Clay Pipe Works Inc., New York city, dated 6 December 1965

*letter ditto dated 20 December 1965

Angelo, G.C. De
*extract from an unknown issue of the newsletter or bulletin of the Central New York Archeological Society containing on a p.58 the note "A 'Mug Pipe' from Munnsville, Madison County" by S.M. Gifford, sent together with a letter dated 14 March 1972 by G.C. De Angelo, Oran, New York state

Angeloni, D.
*letter and drawings from D. Angeloni, Malvern, Ohio, received 14 September 1971

Angus, Mrs Reginald
*letter from Mrs Reginald Angus, Historian, Brooklyn Area Historical Society, Brooklyn, Michigan, to National Museums of Canada, Ottawa, Canada, dated 8 May 1967

Ashdown, J.H.
*letter from J. Ashdown, Department of Architecture and Civic Design, Greater London Council, London, dated 10 September 1970

Atkinson, D.R.
*letter from D.R. Atkinson, London, to A.H. Oswald dated 1 November 1968 (copy forwarded to ICW by AHO)
*letter from D.R. Atkinson, London, dated 17 October 1970
*letter ditto dated 16 June 1971
*letter and drawings ditto dated 13 August 1971
*letter and drawings ditto dated 29 August 1971
*letter ditto dated 26 September 1971
*letter ditto dated 31 December 1971
*letter ditto dated 11 April 1972
*letter ditto dated 24 April 1972
*letter, drawing, and photograph ditto dated 20 May 1972
*letter ditto dated 5 September 1972
*letter ditto dated 21 January 1974
*letter ditto dated 27 June 1974
*letter ditto dated 19 August 1974
*letter ditto dated 23 November 1974
*letter ditto dated 30 November 1974

Barrett, R.
*letter from R. Barrett, W.D. and H.O. Wills, Bristol, dated 4 July 1968
Beane, Elizabeth H.
*letter and drawings from Mrs Elizabeth H. Beane, Lancaster, Virginia, dated 18 August 1972

Béchard, H.
*photographs from Fr H. Béchard, Missio Sancti Francisci Xaverii, Caughnawaga, Quebec province, sent 15 July 1968

Bickford, Anne
*letter from Miss Anne Bickford, Department of Anthropology, University of Sydney, Australia, dated 12 July 1969

Birk, D.A.
*letter and photograph from D.A. Birk, Archaeologist, Minnesota Historical Society, St Paul, dated 26 January 1973

Blesser, N.J.
*letter from N.J. Blesser, Historian, Fort Union National Monument, Watrous, New Mexico, dated 11 December 1967

Bloice, B.J.
*letter from B.J. Bloice, Southwark and Lambeth Archaeological Society, London, received 8 August 1969

Bradford, G.R.
*letter from G.R. Bradford, Preston, Ontario, dated 12 August 1973

Brain, J.P.
*letter from J.P. Brain, Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, Massachusetts, dated 8 April 1971

Brears, P.C.D.
*letter from P.C.D. Brears, The Curtis Museum, Alton, Hampshire, dated 26 March 1968

Bresnick, G.H.
*letter and slides from G.H. Bresnick, Clayton, Missouri, dated 7 November 1967

Camp, Helen
*letter from Mrs Helen Camp, Resident Archaeologist, Ancient Pemaquid Restoration, Round Pond, Maine, dated 27 July 1966
*letter ditto dated 9 December 1966
*letter ditto dated 18 February 1967
*letter ditto dated 16 March 1972
*letter ditto dated 19 December 1972

Charleston, R.J.
letter from R.J. Charleston, Keeper, Department of Ceramics, Victoria and Albert Museum, London, dated 25 March 1968

Chowdharay-Best, G.
*letters from G. Chowdharay-Best, Basildon, Essex, dated 20 June, 6 July, 25 July, and 25 September 1970 in answer to letter from ICW to Country Life 18 June 1970 p. 1162

Church, Miss E.J.
*letter from Miss E.J. Church, Sutton, Surrey, dated 30 September 1973
*letter and material ditto dated 3 February 1974

*letter ditto dated 20 April 1974
*letter and material ditto dated 1 January 1975

City Engineer and Surveyor's Department, Bristol
letter from Acting City Engineer, City Engineer and Surveyor's Department, Bristol, dated 23 August 1972

City Housing Department, Bristol
letter from Director of Housing, City Housing Department, Bristol, dated 5 July 1974

Clerc, E.
*letter and drawings from E. Clerc, Guadaloupe, French West Indies, dated 10 November 1967

College of Arms, London
*letter from P.Ll. Gwynn-Jones, Bluemantle Pursuivant of Arms, The College of Arms, London, dated 22 March 1974

Connah, G.
*letter and drawings from G. Connah, University of Ibadan, Nigeria, dated 27 March 1969

Cork Public Museum
*letter and photograph from Cork Public Museum, Cork, Eire, dated 9 November 1970

Cooksey, A.J.A.
*letter from A.J.A. Cooksey, Poole and District Industrial Archaeology Group, Poole, Dorset, dated 2 January 1969
*letter and drawings ditto dated 6 May 1969
*letter and drawings ditto dated 26 May 1969
*letter and drawings ditto dated 14 July 1969
*letter ditto dated 27 July 1972
*letter ditto dated 29 November 1972
*letters ditto dated 26 November and 18 December 1974
*letter ditto dated 22 June 1975
*letter ditto dated 10 October 1975

Cooper, R.H.
*letter from R.H. Cooper, Epsom, Surrey, dated 29 July 1968
*letter ditto dated 26 August 1968 with note from Hampshire Chronicle of 29 August 1964
*letter ditto dated 8 October 1968
*letter ditto received 29 February 1972
*letter and lists ditto dated 19 December 1972
*letter ditto dated 11 August 1975
*letter ditto dated 2 October 1975

Cotter, J.L.
*letter from Regional Archeologist, Northeast Region, National Parks Service, Department of The Interior, Philadelphia, dated 3 February 1966

County Museum, Armagh
*letter and drawings from The County Museum, Armagh, Northern Ireland, dated 28 October 1970

Curtis, P.M.W.
letter from P.M.W. Curtis, London, dated 2 May 1972

Crundwell, D.H.
*letter and drawings from D.R. Crundwell, Windsor Chapter Ontario Archaeological Society, Chatham, Ontario, dated 5 October 1972

Department of Trade and Industry, London
letter from Industrial and Commercial Policy Division 3, Department of Trade and Industry, London, dated 11 May 1972

Devonish, D.C.
*letters from D.C. Devonish, formerly Curator of the Gibraltar Museum, dated 7 July, 9 September, and 12 October 1970

Dixon, B.
*letter from B. Dixon, Landlord, Ferry Inn, Brough, Yorkshire, received 16 October 1973

Dublin Public Libraries
*letter from City and County Librarian, City of Dublin Public Libraries, dated 19 February 1968

Earl of Cawdor
*letter and photograph from the Rt Hon. the Earl of Cawdor, Cawdor Castle, Nairn, dated 7 November 1967

Emslie, G.C.
*letter from G.C. Emslie, Curator, "Old Glasgow" Museum and Art Gallery, Glasgow, dated 10 September 1964

Falcon Pipe Group Ltd
*letter and leaflets from The Falcon Pipe Group Ltd, Brentford, Middlesex, dated 5 February 1974

Fenton, A.
letter from A. Fenton, National Museum of Antiquities of Scotland, Edinburgh, dated 8 May 1968

Fontana, B.L.
*letter from B.L. Fontana, Ethnologist, Arizona State Museum, University of Arizona, Tucson, dated 14 June 1966
letter ditto dated 17 October 1972

Førsya Forminnissavn, Tórshavn
*letter from Føroya Forminnissavn [Faeroese Antiquities Museum], Tórshavn, dated 3 November 1971

Gant, L.H.
*letter from L.H. Gant, Essex Archaeological Society, Colchester, dated 16 April 1968
*letter and drawings ditto dated 13 and 14 November 1968
*letter ditto dated 31 August 1970

Geological Survey of Northern Ireland
letter from Geological Survey of Northern Ireland, Belfast, dated 10 September 1970

Givet
*letter from Maire of Givet, France, dated 9 July 1968

Glendale Footwear Co Ltd
*letter from Glendale Footwear Company Ltd, Glasgow, dated 12 January 1968

Green, E.M.
*letter from E.M. Green, Michigan Archaeological Society, Taylor, Michigan, dated 25 May 1969

Greenacre, F.W.
letter from F.W. Greenacre, Curator, Department of Fine Art, Bristol City Museum and Art Gallery, dated 18 April 1973

Grimm, J.L.
*letters from J.L. Grimm, Fort Ligonier Memorial Foundation, Ligonier, Pennsylvania, dated 3 and 6 July 1965
*letter ditto to Miss E.A. Wylie, National Historic Parks and Sites Branch, Ottawa, dated 10 April 1967 (copy to ICW from EAW)
*letter ditto dated 27 July 1967

Grosvenor Museum, Chester
*letters and map from Grosvenor Museum, Chester, dated 9 June 1972

Guildhall, London
*letter from A.H. Hall, Librarian, Guildhall Library, dated 18 March 1968 and from R. Merrifield, Assistant Keeper, Guildhall Museum, dated 26 April 1965
*letter from A.H. Hall, Librarian, Guildhall Library, dated 6 September 1965
*letter from N. Cook, Director, Guildhall Museum, dated 7 August 1967
*letter from P.E. Jones, Deputy Keeper of Records, Guildhall Records Office, dated 20 June 1969
*letter from G. Thompson, Librarian, Guildhall Library, dated 8 January 1974

Guinness Ltd
letter from Arthur Guinness Son and Company (Park Royal) Ltd, London, dated

4 September 1968

Hagerty, G.
*letter from G. Hagerty, Director, School Services, Old Sturbridge Village, Sturbridge, Massachusetts, dated 18 January 1966
*letter ditto dated 21 September 1966
*letter ditto dated 19 October 1966
*letter ditto dated 29 December 1966
*letter ditto dated 14 March 1967
*letter and slides ditto dated 12 April 1967 and letter dated 2 May 1972
*letter ditto 24 April 1967
*letter ditto dated 12 December 1967
*letter ditto dated 6 January 1969
*letters and drawings ditto dated 27 Janury and 3 February 1969
*letter and drawings ditto dated 4 February 1969
*letter ditto dated 5 March 1969
*letter ditto received 27 March 1969
*letter ditto received 6 May 1969 containing letter to GH from H.G. Omwake dated 3 January 1967
*letter and photograph ditto dated 16 June 1970 together with letter to GH from G.R. Horner, Eastern Nazarene College, Quincy, Massachusetts, dated 5 February regarding the photograph
*letter and drawings ditto dated 25 November 1970

Harrington, J.C.
*letter from J.C. Harrington, Resources Studies Advisor, National Parks Service, Department of the Interior, Richmond, Virginia, dated 7 December 1965
*letter ditto (now retired) dated 9 June 1970

Head Post Office, Bristol
letter from Head Postmaster, Head Post Office, Bristol, dated 8 August 1972

Hemming, R.G.A.
*letter from R.G.A. Hemming, Director, C.B. and McDougall Ltd, Glasgow, dated 3 May 1965
*letter and catalogue ditto dated 17 June 1965
*letter ditto dated 17 November 1966
*letter ditto dated 3 August 1968

Herment, G.
*letter from G. Merment, Penne-du-Tarn, Tarn, France, dated 21 March 1968

Hill, C.
*letter from C. Hill, Master, Balliol College, Oxford, dated 3 February 1971
*letter ditto dated 21 January 1972

Hudson, J.P.
*letter from J.P. Hudson, Museum Curator, Jamestown Colonial National Historical Park, Virginia, dated 6 November 1967

Hume, J.R.
*letter from J.R. Hume, Department of Economic History, University of Strathclyde, Glasgow, dated 7 November 1967

Humphrey, R.V.
*letter from R.V. Humphrey, Department of Anthropology, University of California, Santa Barbara, dated 3 February 1967

Inderwick and Co Ltd
*letter and pamphlet from Inderwick and Co Ltd, pipemakers, London, dated 26 February 1969

Institute belge d'information et de documentation
letter from Institute belge d'information et de documentation, Brussels, dated 22 April 1968

Israel, S.
*letter from S. Israel, State of North Carolina Department of Archives and History, Raleigh, dated 5 August 1971

Jean Delbar-Bix
letter from Ets Jean Delbar-Bix, Gilly, Belgium, dated 27 May 1968

Jelks, E.B.
*letter from E.B. Jelks, Anthropology Research Center, Southern Methodist University, Dallas, Texas, dated 9 April 1968

Johnson, Daphne
*letter from Mrs Daphne Johnson, Compton Martin, nr Bristol, dated 27 August 1970 in answer to letter from ICW to Country Life 18 June 1970 p.1162

Kellar, J.H.
*letter from J.H. Kellar, Director, G.A. Black Laboratory of Archaeology, Indiana University, Bloomfield, dated 6 April 1967

Kenyon, T.
*letter, photographs, and drawings from T. Kenyon, Hamilton, Ontario, sent 15 June 1972
*letter, photographs, and drawings ditto sent 18 July 1972
*letter and drawings ditto dated 3 October 1972

Kopke, L.A.
*letter and photograph from L.A. Kopke, Britton, Michigan, dated 3 November 1967

Lefrancq, M.-G.
*letter and lists from M.-G. Lefrancq, Mons, Belgium, dated 9 October 1969
*letter and drawings ditto dated 19 January 1971
*letter ditto dated 13 November 1971

*letter and drawings ditto dated 9 March 1972

Lenik, E.J.
*letter from E.J. Lenik, Wayne, New Jersey, dated 13 December 1974

Lewis, B.R.
*letter from B.R. Lewis, Vista, California, dated 28 May 1970

Lillico, J.D. Miss
*letter from Miss J.D. Lillico, Curator in Folk Life, City Museum and Art Gallery, Bristol, dated 24 May 1965

Lindsay, C.S.
*letter from C.S. Lindsay, Senior Archaeologist, Fortress of Louisbourg National Historic Park, Louisbourg, Nova Scotia, dated 8 November 1972
*letter and photographs ditto dated 6 December 1972

Liverpool Record Office
*letter from City of Liverpool Libraries Department, Record Office, dated 17 February 1969
*letter ditto dated 7 May 1970
*letter ditto dated 7 March 1973
*letter ditto dated 4 January 1974

Lloyds Bank, Bedminster
letter from Manager, Lloyds Bank Limited, Bedminster Branch, Bristol, dated 5 February 1974

Lunny, F.
letter from F. Lunny, Chief Fuel Technologist, Bord na Móna [Irish Peat Board], Newbridge, Co. Kildare, Eire, dated 4 June 1968

Manchester Public Libraries
*letter from Local History Library, Central, The Manchester Public Libraries, Manchester, dated 1 February 1974
*letter ditto dated 28 May 1974
*letter ditto dated 26 July 1974
Matthews, L.G.
*letter and copy of song "Tobacco is an Indian Weed" from L.G. Matthews, London, dated 1 May 1973

Magyar Nemzeti Múzeum
*letter from Magyar Nemzeti Múzeum [National Museum of Hungary], Budapest, dated 11 December 1967

Mitchell, B.M.
*letter from B.M. Mitchell, Deep River, Ontario, dated 7 July 1967
*letter and photographs ditto dated 13 July 1967
*letter ditto dated 23 March 1968
*letter ditto dated 2 August 1969

Mitchell Library, Glasgow
*letter from Mitchell Library, Glasgow, dated 10 July 1967
*letter ditto dated 3 November 1967
*letter ditto dated 12 December 1967

Montreal Archives
*letter and file data from City Clerk's Department, Archives Division, Montreal, dated 28 December 1965 (includes typescript of E.-Z. Massicotte "The Pipe-Making Industry of Canada" in Le bulletin des recherches historiques vol XL no 4 (April 1934) 248)
*letter and lists ditto dated 8 November 1967

Müllenbach and Thewald
*letter from Müllenbach and Thewald K.G., pottery and refractory ware manufacturers, Höhr-Grenzhausen, West Germany, dated 30 January 1968

Musée de Céramique, Sèvres
*letters, drawings, and photographs from the Conservateur, Musée National de Céramique, Sèvres, France, dated 24 March and 15 May 1965

Musée Communal de la Céramique, Andenne
*letter from the Président, Musée Communal de la Céramique, Andenne, Belgium, dated 15 February 1968 with extract from the Bulletin des musées de Belgique (1960-61) 108-9

Musée Jean Lescarts, Mons
*letter from the Conservateur, Musée Jean Lescarts, Mons, Belgium, dated 17 January 1969

McBryde, Isabel
*letter, rubbings, and photograph from Miss Isabel McBryde, Department of Classics and Ancient History, University of New England, Armidale, New South Wales, Australia, dated 29 March 1971

McCashion, J.H.
*letter from J.H. McCashion, Van Epps-Hartley Chapter, New York State Archeological Association, Albany, New York state, dated 21 August 1971
*letter ditto dated 11 September 1971
*letter ditto dated 9 November 1971
*letter and drawings ditto dated 4 December 1971
*letter ditto dated 26 August 1973
*letter ditto dated 10 July 1974

McDonald, R.M.
*letter from R.M. McDonald, Erindale, Ontario, dated 14 February 1967
*letters ditto (now of Mississauga, Ontario) dated 21 March and 30 April 1971

McMillan, D.
*letter from Professor D. McMillan, Department of French, University of Edinburgh, dated 21 March 1969

National Library of Scotland
*letter from National Library of Scotland, Edinburgh, dated 6 October 1967

New-York Historical Society
*letter from the New-York Historical Society, New York city, received 6 March 1974
*letter ditto received 19 March 1974

Noël Hume, Audrey
*letter from Audrey Noël Hume, Archaeological Research Associate, Colonial Williamsburg, Virginia, dated 11 August 1964

Noël Hume, I.
*letter and drawing from I. Noël Hume, Director, Department of Archaeology, Colonial Williamsburg, Virginia, dated 8 March 1972
*letter and makers' marks ditto dated 24 May 1972

Norick, F.A.
*letter from F.A. Norick, Museum Anthropologist, The Robert H. Lowie Museum of Anthropology, University of California, Berkeley, dated 25 March 1968

Oak-Rhind, H.
*letter and photograph from H. Oak-Rhind, Bletchley, Buckinghamshire, dated 11 May 1969

Omwake, H.G.
*letter from H.G. Omwake, Delaware Archaeological Society, dated 16 March 1965
*letter and drawings of Port Royal, Jamaica, pipe-material sent to H.G. Omwake December 1966 (copies sent to ICW by HGO)

Orde-Powlett, P.C.
*letter from Hon. P.C. Orde-Powlett, Basing House, Old Basing, Basingbroke, Hampshire, dated 23 October 1968
*letter ditto dated 6 October 1969

Oswald, A.
*letter from A. Oswald (formerly Keeper, Birmingham City Museum and Art Gallery, now of Avon Castle, Ringwood, Hampshire) dated 23 May 1966
*drawing and comments on a series of photographs ditto dated 19 May 1967
*letter ditto dated 9 January 1968
*letter ditto dated 3 February 1968
*lists of stem length and stem-bore diameter dating data ditto dated 1 April 1968
*letter and lists ditto dated 5 May 1968
*letter, photographs, and drawings ditto dated 22 November 1968
*letter ditto dated 12 December 1968
*copies of various letters to AHO on pipes from Ghana, New Zealand, and Wyoming, sent to ICW 1 January 1969
*letter, lists, and drawings ditto dated 28 January 1969
*letter and drawings ditto dated 28 May 1969

*letter and extracts from State Papers Domestic James I-Charles II ditto dated 14 August 1969
*letter ditto dated 21 July 1970
*letter ditto dated 23 October 1970
*letter and drawings ditto dated 1 December 1970
*letter and lists ditto dated 9 March 1971
*letter ditto dated 15 July 1971
*letter ditto dated 6 January 1972
*letter ditto dated 21 February 1972
*letter ditto dated 5 April 1972
*letter ditto dated 16 June 1972
*letter ditto dated 4 October 1972
*inventory lists abstracted by H. Oak-Rhind, and drawings, ditto received 11 October 1972
*letter ditto dated 10 October 1973
*letter, drawings, and manuscript ditto dated 2 April 1974

Parks, S.R.
*letters from S.R. Parks, Associate Curator, The James Marshall and Marie-Louise Osborne Collection, Yale University Library, New Haven, Connecticut, dated 9 September and 16 October 1970 in answer to letter from ICW to Country Life 18 June 1970 p.1162

Pearce, A.E.McR.
*letter and photograph from A.E.McR. Pearce, Yeovil, Somerset, dated 28 April 1969 to City Museum, Bristol, forwarded to ICW
*letter and photographs ditto dated December 1969

Pearce, J.N.
*photographs and data on file at Smithsonian Institution, Washington, sent 24 December 1963 by J.N. Pearce, Associate Curator, Division of Cultural History

Petersen, E.T.
*letter from E.T. Petersen, Director of Historic Projects, Mackinac Island State Park Commission, Mackinac Island, Michigan, dated 30 November 1964

Petty, W.J.
*letter from W.J. Petty, Museum Curator, Fort Laramie, National Historic Site, Fort Laramie, Wyoming, dated 11 April 1968

Pipe Club of Great Britain
*letter from The Pipe Club of Great Britain Ltd, London, dated 12 August 1975

Plymouth Pulic Libraries
*letter from City Librarian, Plymouth Public Libraries, dated 14 May 1969

Polhemus, R.
*letter and photograph from R. Polhemus, Laboratory Supervisor, Institute of Archaeology and Anthropology, University of South Carolina, Columbia, dated

25 January 1971

Pollock, G.
*letter and pamphlets from G. Pollock of John Pollock and Co, Clay Tobacco-Pipe Manufacturers, Manchester, received 11 January 1966
*letter ditto dated 14 March 1968
*letter ditto dated 10 December 1968
*letter ditto dated 9 August 1974

Pratt, P.P.
*letter and photographs from P.P. Pratt, Associate Professor, Department of Anthropology, State University College, Oswego, New York state, dated 25 January 1968

Pretty, G.L.
*letter from G.L. Pretty, Curator of Archaeology, The South Australian Museum, Adelaide, dated 28 February 1968

Price, R.
*letter and figures from R. Price, Department of Archaeology, City Museum and Art Gallery, Bristol, dated 18 January 1974
*letter ditto dated 1 August 1974
*letter and enclosures ditto dated 3 October 1974

Quebec Provincial Archives
*letter from Quebec Provincial Archives, Quebec City, dated 17 January 1966

Ralph, Elizabeth
*letter from Miss Elizabeth Ralph, City Archivist, Bristol, dated 7 December 1964
*letter ditto dated 10 May 1965
*letter ditto dated 31 August 1965
*letter ditto dated 9 September 1970

Reid, C.S.
*letter and drawings from C.S. Reid, Regional Archaeologist, Ontario Ministry of Natural Resources, Kenora, dated 14 October 1974

Ripley, Susan
*letter from Miss Susan Ripley, Milan, dated 10 October 1969

Robertson, D.S.
*letter from Dr D.S. Robertson, Deep River, Ontario, dated 21 July 1967
*letters ditto dated 4 and 11 July 1971
*letter ditto dated 14 January 1975

Robinson, Loreen
*letter and photographs from Miss Loreen Robinson, Cariboo College, Kamloops, British Columbia, dated 8 February 1974
*letter ditto dated 20 February 1974

Rodger, M.F.
*letter from M.F. Rodger of Montreal (Director, C.B. and Mcdougall, pipemakers, Glasgow) dated 24 July 1969
*letter ditto dated 17 Janury 1972

Ross, L.A.
*letter and drawings from L.A. Ross, Laboratory Director, Fort Vancouver National Historic Site, Vancouver, Washington state, dated 12 March 1974

Royal Society of Antiquaries of Ireland
letter from Royal Society of Antiquaries of Ireland, Dublin, dated 1 December 1971

S.M. Frank and Co. Inc.
*letter from S.M. Frank jr, President, S.M. Frank and Co. Inc., Yaphank, New York state, dated 14 March 1974
*letter and part of pamphlet ditto dated 25 April 1974

Simard, R.
*letter and drawings from R. Simard, Société d'archéologie du Saguenay, Chicoutimi, Quebec province, dated 5 May 1972

Skinner, Sally
*letter and slides dated 13 June and letter dated 2 August from Miss Sally Skinner, Department of Anthropology, Florham-Madison Campus, Fairleigh Dickinson University, Madison, New Jersey

Snow, Cordelia T.
*letter from Mrs Cordelia T. Snow, Archaeologist, Minute Man Historical Park, National Parks Service, Concord, Massachusetts, dated 6 June 1967

South,S.
*letter from S. South, Archaeologist, State of North Carolina Department of Archives and History, Raleigh, dated 31 August 1965
*letter ditto (now at Institute of Archaeology and Anthropology, University of South Carolina, Columbia) dated 13 January 1969

Southampton Public Libraries
*letter from Southampton Public Libraries dated 5 June 1969

Stone, L.M.
*letter from L.M. Stone, Research Assistant, Michigan State University Museum, East Lansing, to Miss E.A. Wylie, National Historic Parks and Sites Branch, Ottawa, dated 29 March 1967 (copy to ICW from EAW)

Stutheit, E.E.
*letter from E.E. Stutheit, Superintendent, Fort Kearney State Historical Park, Kearney, Nebraska, dated 27 April 1968

Swansea Public Library
*letter from Reference Commercial and Technical Department, Central Public Library, Swansea, dated 14 February 1969

Tanguay, R.
*letter and photographs from Abbe R. Tanguay, Directeur du Musée, Collège de Sainte-Anne de la Pocatière, La Pocatière, Quebec province, dated 13 May 1966

Tavender, G.
*letter from G. Tavender, Malton, Ontario, dated 25 November 1970

Thacker, D.W.D.
*letter from D.W.D. Thacker, Curator, Abergavenny and District Museum, Abergavenny, Monmouthshire, dated 19 September 1965
*letter ditto dated 1 November 1965
*letter ditto dated 18 December 1971

Thođminjasfn Íslands, Reykjavík
*letter from Thjođminjasfn Íslands [National Museum of Iceland], Reykjavík, dated 2 December 1969

Thomas, B.B. jr
*letter and photograph from B.B. Thomas jr, Fort Lee, New Jersey, dated 24 January 1971

Thompson, E.P.
letter from E.P. Thompson, Centre for the Study of Social History, University of Warwick, dated 9 May 1972

Valenciennes
*letter from the Conservateur of the City Library and Archives, Valenciennes, Nord, France, dated 8 August 1968

Viner, G.A.
*letters from Brig. G.A. Viner, Walderton, Chichester, Sussex, dated 8 and 28 August 1974

Want, D. van der
*letter from D. van der Want, Zenith Plateelbakkerij en Pijpenfabrieken, Gouda, dated 12 December 1967

Webb, R.H.B.
letter from R.H.B. Webb, Ditchling, Hassocks, Sussex, dated 25 April 1974

Wedgwood, Cecily V.
*letter from Miss Cecily V. Wedgwood, Department of History, University College, University of London, dated 20 January 1969

Wells, P.K.
*letter from P.K. Wells, Old Leake, Boston, dated 20 December 1967

*letter and photographs ditto dated 27 January 1968
*letter and graph ditto dated 17 April 1969
*letter ditto dated 15 June 1971
*letter and drawing ditto dated 26 January 1974
*letter and drwings ditto dated 21 April 1974
*letter ditto dated 15 October 1974
*letter ditto dated 19 October 1974

Westbrook, Arlen
*letter from Mrs Arlen Westbrook, Voorheesville, New York state, dated 19 April 1969

Whuer, L.
letter from L. Whuer, Officer in Charge, Redwood House, Bristol, dated 18 June 1974

Wilkie, R.B.
*letter from R.B. Wilkie, Curator, The "Old Glasgow" Museum and Art Gallery, Glasgow, dated 21 September 1966
*letter ditto dated 30 November 1966
*letter ditto dated 28 February 1967
*letter ditto dated 23 November 1967

Wilson, J.P.
*card from J.P. Wilson, Las Cruces, New Mexico, dated 12 December 1975

Wilson, R.
*letter, notes, and graphs from R. Wilson, Chester, dated 24 November 1967
*draft pages from article and drawings from ditto received 29 November 1967
*drawing ditto dated 18 December 1967
*drawings ditto dated 18 March 1968
*letter and drawings ditto dated 2 July 1968
*drawing ditto dated 3 July 1968
*letter and drawings ditto dated 22 August 1968

Witthoft, J.
*letter from J. Witthoft, State Archaeologist, Pennsylvania Historical and Museum Commission, Harrisburg, dated 2 September 1964

Wyoming State Archives and Historical Department
*letter from Wyoming State Archives and Historical Department, Cheyenne, dated 13 June 1968

Zimmerman, H.F.
*letters and drawings from H.F. Zimmerman, Chairman, Archaeological Work Team, Friends of the Hermitage, Ho-Ho-Kus, New Jersey, dated 14 March, 13 September, 12 November, and 25 November 1974
*letter ditto dated 10 August 1974

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

Publications available by mail from Printing and Publishing, Supply and Services Canada, Ottawa, Ontario K1A 0S9, Canada, or through your bookseller.

1 Inventaire des marchés de construction des archives civiles de Québec, 1800-1870, by Geneviève G. Bastien, Doris D. Dubé and Christina Southam. 1975. 3 vols. $20.00; $24.00 outside Canada.

2 Histoire économique et sociale de Saint-Lin, 1805-1883, et l'importance de la famille Laurier, by Réal Bélanger. 1975. $4.00; $4.80 outside Canada.

3 Historique structural du fort George, by Yvon Desloges. 1975. $5.00; $6.00 outside Canada.

4 Plans de l'architecture domestique inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture commerciale et industrielle inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture publique, de l'architecture religieuse et du génie mécanique inventoriés aux Archives Nationales du Québec à Montréal, by André Giroux, Nicole Cloutier and Rodrigue Bédard. 1975. 3 vols. $11.00; $13.20 outside Canada.

5 A Report on a West Coast Whaling Canoe Reconstructed at Port Renfrew, B.C., by E.Y. Arima. 1975. $5.50; $6.50 outside Canada.

6 Louisbourg and the Indians: A Study in Imperial Race Relations, 1713-1760, by Olive Patricia Dickason; Surgeons and Surgery in Ile Royale, by Linda M. Hoad. 1976. $10.50; $12.60 outside Canada.

7 Archaeology and the Fur Trade: The Excavation of Sturgeon Fort, Saskatchewan, by Norman F. and Anne Barka. 1976. $6.25; $7.50 outside Canada.

8 Navy Hall, Niagara-on-the-Lake, by David Flemming; Fort Wellington: A Structural History, by David Lee; The Battle of the Windmill: November 1838, by David Lee. 1976. $5.75; $6.90 outside Canada.

9 Fort George on the Niagara: An Archaeological Perspective, by John P. Wilson and Linda D. Southwood. 1976. $8.00; $9.60 outside Canada.

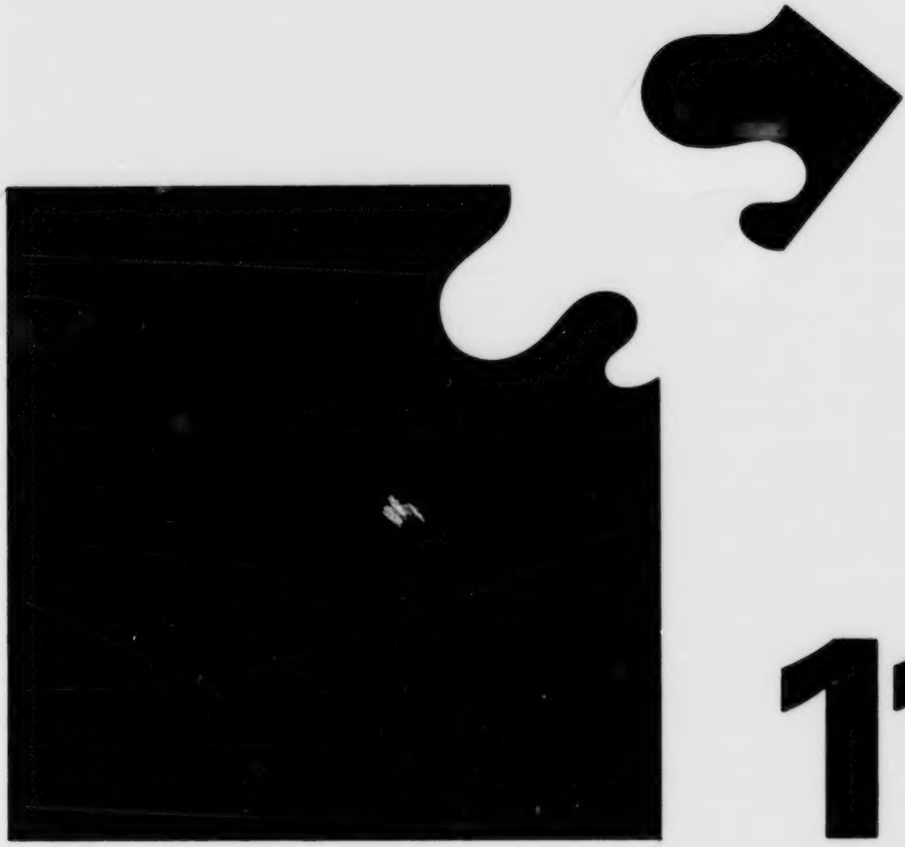
10 Etude sur la vie et l'oeuvre de Jacques Cartier (1491-1557), par Réal Boissonnault; Fouilles au parc Cartier-Brébeuf, Québec, 1959, par Kenneth E. Kidd; Fouilles au parc Cartier-Brébeuf, Québec, 1962, par John H. Rick; Archéologie de sauvetage au parc Cartier-Brébeuf, la ville du Quebec: juillet-aout 1969, par Marcel Moussette. 1976. In press.

Indian and
Northern Affairs

Parks Canada

Affaires indiennes
et du Nord

Parcs Canada



11c

History and Archaeology

Histoire et Archéologie

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

11C

CLAY TOBACCO-PIPES, WITH PARTICULAR REFERENCE TO THE BRISTOL INDUSTRY

IAIN C. WALKER

NATIONAL HISTORIC PARKS
AND SITES BRANCH

PARKS CANADA

DEPARTMENT OF INDIAN
AND NORTHERN AFFAIRS

DIRECTION DES PARCS ET DES
LIEUX HISTORIQUES NATIONAUX

PARCS CANADA

MINISTERE DES AFFAIRES INDIENNES
ET DU NORD

©Minister of Supply and Services Canada 1977.
Available by mail from Printing and Publishing,
Supply and Services Canada, Ottawa, K1A 0S9,
or through your bookseller.

Price Canada: $25.00 a set.
Price other countries: $30.00 a set.
Price subject to change without notice.

Catalogue No.: R64-81/1977-11
ISBN: 0-660-00869-6

Published by Parks Canada under authority
of the Hon. Warren Allmand,
Minister of Indian and Northern Affairs,
Ottawa, 1977.
QS-7027-013-BB-A1

The opinions expressed in this report are those of the author and not necessarily those of the Department of Indian and Northern Affairs.

Clay Tobacco-Pipes, with Particular
Reference to the Bristol Industry
by Iain C. Walker

Volume A. Chapter 1 - Background
Chapter 2 - Manufacturing Processes
Chapter 3 - History of the Clay Pipe Industry
Chapter 4 - Pipemaking in Various Centres
Chapter 5 - Production Costs and Wages

Volume B. Chapter 6 - Bristol
Chapter 7 - Summary and Conclusions
Endnotes
Bibliography and References

Volume C. Appendices

Volume D. Illustrations

Clay Tobacco-Pipes, with Particular
Reference to the Bristol Industry
by Iain C. Walker

Volume C

979 Appendix I. Metal Pipes.
983 Appendix II. Churchwarden Pipes and the Southorn Family.
989 Appendix III. Technical Terms and Pre-metric Measurements.
991 Appendix IV. "Pretty tube of mighty power...Lip of wax and eye of fire".
995 Appendix V. The Terms "saggar" and "muffle".
999 Appendix VI. Ordinances of the Bristol Pipemakers' Guild, 1652.
1003 Appendix VII. Glasgow Tobacco-Pipe Makers.
1035 Appendix VIII. Museum Pipe Collections Examined for Bristol Material.
1041 Appendix IX. Bristol Tobacco-Pipe Makers.

APPENDIX I:
METAL PIPES

APPENDIX I: METAL PIPES

According to A. Dunhill (1924: 218-9), iron pipes were introduced because it was so easy to break long-stemmed clay pipes, though they never became popular, being unsatisfactory and unpleasant to smoke. Lindsay (1927: 68, 69, figs 382-4 and 387, 1964 ed) notes pipes made of iron - sheet, wrought, and cast - steel, brass, and silver (cf N&Q 23 October 1875: 328, 18 December 1875: 495-6, 29 January 1876: 94, 2 January 1909: 10; also Davidson 1957: 57 illus.) belonging principally to the C18. One C18 steel pipe had an 18-ins long stem which unscrewed into three sections. Fairholt (1859: 171) and A. Deane (1914: 7, but his reference is erroneous) say that such pipes were occasionally used in the reign of William of Orange, 1688-1702; and Deane (loc. cit.) and Lejeal (1897: 279) note they have been found in Ireland. Alvey (1973: 37, 36 fig 1, 5) refers to products of a C18 Nottingham pipemaking family as "clearly having a relationship with the iron pipes of the 18th century", though he cites no information on the latter, and Garrett (1968: caption to centre illus. on p.106) notes there was "a brief vogue for iron pipes...toward the end of the eighteenth century" and illustrates a wrought iron example and also a silver one, which latter was made by the London firm of Phipps and Robinson and dates to 1805. Bastien, who is an extremely unreliable source, claims (1973: 2nd chapt) that in Germany, Austria, and throughout Central Europe, metal, particularly iron, pipes "connaissent un succès appréciable" at the time porcelain pipes were becoming popular - as discussed in 3: VI, metal pipes were common in Switzerland, where bowl forms do suggest they date to the C18.

E.A. Barber, basing his views on the opinion of the Swiss archaeologist Ferdinand Keller expressed in correspondence (quoted in E.A. Barber 1880b: 120; cf 1880b: 121 and 1880a: 6) suggested iron pipes were first made in The Netherlands in the C16 or C17 and that the Dutch spread their use, including to Britain in the time of William of Orange and later (1880a: 4). Miles Standish, who went to Massachusetts on the Mayflower in 1620, is supposed, as noted in 3: I, to have taken with him and used until he died a little iron pipe "about the size and shape of a common clay pipe" (noted in Fairholt 1859: 171 second footnote; Barber 1880a; 6 suggests the pipe was Dutch).

Metal pipes are not unknown in The Netherlands - there are ones of tin or pewter in the pipe collection of the Douwe Egberts tea, coffee, and tobacco firm in Utrecht - and as noted elsewhere (pp244-5) there are references at the very end of the C16 and at the beginning of the C17 (and one near the end of the C17), mainly from England, to silver pipes, one example, datable to ca. 1620-40, actually being known; but in the main, metal pipes must have been the response of an impoverished environment - for example Scotland (Apperson 1914: 230), Ireland (see above), the American colonies (Anonymous 1868: I, 502; McGuire 1899: 463; Wray and Schoff 1953: 58; Cotter 1958: 192, pl 90 and I. Noël Hume 1970c: 308; Kelso 1967: 58, 69 fig 3; McCord 1970: 117, 132 fig 13a; Cleland 1971: 86, 87 fig 42, E-3; Wray

1973: 15 and illus.), Switzerland (see 3: VI), northern Scandinavia (Pritchett 1890: 94-5; Cassidy 1895: 21; Lejeal 1897: 27; Godet 1898: 131, fig 1) - unable to obtain clay pipes. However, according to Bastien (1973: 2nd chapt), metal pipes were produced in France for certain clientele, *pipes de Mousquetaires* for carrying "in a horseman's boot" and iron *pipes de traite* for slavers. Bastien illustrates these latter (1973: pl 64), which are characterized by upright conical bowls. Further, a decorated pewter pipe with a Dutch-style bowl, 14 ins long and of superior workmanship, came from an Indian burial at the French mission site of Ste-Marie I near Midland in south-central Ontario occupied 1639-49 (Jury and Jury 1954: 93-4, pl XXIVa, 1965 ed) and a most attractive cast brass stub-stemmed pipe with a lion climbing the back of the bowl and a stag on the stem from the Boughton Hill site, Victor, New York state, which is dated to ca.1670-87 (Wray 1973: 15 and fig 15-12), show that not all metal pipes were made as poor relations of clay pipes. Pewter pipes with birds on perches and monkeys on the bowl were being traded to the Indians in the second half of the C17, and wooden pipes with ornate pewter inlay are also known, as are wooden pipes with brass inlay and brass or pewter bowl-liners (Wray 1973: 15 and illus.). From this evidence, and from the native-made sheet-brass pipes which occur from shortly after 1600, it is clear that the American Indians, like the Swiss, developed a liking for metal pipes; however, a metal pipe was shown at the 1851 Great Exhibition by a James Mitchell of Stonehaven, Scotland (*Official Descriptive and Illustrated Catalogue* II, 657), indicating a presumably serious attempt to make such pipes a practical proposition in Britain in the mid-C19. Even later last century, a blacksmith at Biggar in Scotland, James Pairman, made a long-stemmed steel pipe (on exhibit at the Gladstone Court Museum, Biggar, seen there by this writer October 1973; Pairman was evidently a skilled craftsman, for he was also associated with the Albion motor works at Glasgow about the end of last century).

(It seems unlikely that Lindsay (1927: 69, 1964 ed) is correct when he claims metal pipes were used in the hunting field in the early C19 but that accidents resulting from smokers having falls caused such pipes to be abandoned in preference to clay ones. The suggestion that men smoked pipes while hunting seems improbable, and as is noted in 1: VII(b) and (e) pipe-smoking in the respectable social classes had been steadily declining during the C18 and did not again reach widespread respectability until the mid-C19. It is thus not likely that the social classes who would have hunted in the early C19 would have smoked pipes much at all.)

A possible explanation for some of the metal pipes recorded, though some certainly were smoked, is that they were tobacconists' signs. According to Meadows (1957: 38), "The combination of Tobacconist and Ironmonger was not uncommon in the provinces in the seventeenth and eighteenth centuries, though in every case the tobacco department was eventually discontinued, leaving only the ironmongery". One such firm, which flourished at the sign of the Golden Pipe under a variety of names for over 300 years - 1601-1914 - in Norwich and finally closed as Palmer and Sons, Ironmongers, had as a sign "a long-stemmed small bowl pipe, which was made of cast iron and broken up when the business ceased" (Meadows *loc.cit.*).

APPENDIX II:
CHURCHWARDEN PIPES AND THE SOUTHORN FAMILY

APPENDIX II:
CHURCHWARDEN PIPES AND THE SOUTHORN FAMILY

As already noted, various writers ascribe the appearance of the long-stemmed pipe known as the Churchwarden to the late C18 or early C19. In some cases actual dates - 1819 and 1840, for example - are given either for the introduction of the pipe or of its name.

The OED does not note the use of the term Alderman for a clay pipe, but it does recognize the term Churchwarden - albeit under the heading "colloquial" (vol II) - and gives the date of its first recorded appearance in print as 1863, an apparently offhand reference in J.C. Jeaffreson's Live it Down. The lateness of this date is interesting, for neither Fairholt (1859) nor R. Thursfield (1863) appears to know of the term - Fairholt p.173) says that long-stemmed pipes "were reverently termed aldermen in the last age, and irreverently yards of clay in the present one", while Thursfield (p.82) simply talks of the "long pipes" made at Broseley first by Roden and then by Southorn. A bill of 1874 from Edwin Southorn to the Angel Hotel, Abergavenny, and now preserved in the Abergavenny and District Museum (see 5: I) has beneath its letterhead the quotation of one Dr. Richardson at the 1864 Bath meeting of the British Association (the Burton-Speke meeting) that "The best pipe is unquestionably the 'Churchwarden' or long clay", which appears to be a specific reference to a Southorn product (cf Jewitt 1878: I, 298). Jewitt (loc. cit.) appears to be the first writer on pipes to use the term, when referring to Broseley pipes.

Mr Clive Southorn at Broseley maintained in July 1968 that the only true Churchwarden was a 24-ins pipe; but a Wm Southorn and Co. of Broseley poster of pipe types (Anonymous n.d. [12]) - printed not earlier than 1871 and if the monarch on pipe no 37 is Edward VII, as it appears to be, then not earlier than 1901 or 1902 - lists two Churchwardens: one, no 74, called "Long Broseley 'Churchwarden' 25 inches Long Tips" and the other, no 77, a "Short Churchwarden 21 inches." The only Alderman listed was no 76, with the alternative title "Long Broseley Straw" and 27 ins long. With the exception of no 73, a "Broseley Smoke Room" at 20 ins and no 68, a 'Short Broseley Smoke Room' at 16 ins, all other long-stemmed pipes from one 10 ins long to one 28 ins long were called Straws. T.H. Thursfield writing in 1907 noted "The term 'A Broseley' conveys the same impression to smokers throughout the country, and 'A Churchwarden' from Broseley is equally well understood to refer to an extra long clay pipe from Broseley", which suggests that by his time the term simply meant a very long clay pipe, but at the same time one particularly associated with Broseley. He goes on to say that these pipes were supplied in large numbers to London coffee houses and thus became very fashionable, and that this may have contributed considerably to the reputation of Broseley pipes (T.H. Thursfield 1907: 164). An original W. Southorn and Co. cardboard box at the Welsh Folk Museum, St Fagans, has on its lid the following legend: WILLIAM SOUTHORN & Co's/CELEBRATED CHURCHWARDEN PIPE/WORKS: BROSELEY, SALOP., suggesting that the term Churchwarden was particularly associated with the Southorn family.

Whatever precise meanings the Broseley terms may have had originally, they now appear to be lost, but it may be that Churchwarden was a late term invented perhaps by Southorn's on a analogy with Alderman to denote a superior type of long-stemmed pipe. The dating evidence, the early association of the term with Southorn's, the use in one instance in the Southorn catalogue of the term in inverted commas, and T.H. Thursfield's remarks, would all agree with this suggestion. Already as early as 1883 Harper's Magazine was describing the Churchwarden as "a small [sic] clay pipe with a stem sixteen to twenty inches long" (OED), a description which suggests that by that date, at least as explained to the American readers of this publication, the term had become a generic one. Even the term "Broseley" for a long-stemmed pipe was being used by non-Broseley makers as early as 1862 to judge by entries for that and succeeding years in the ledger-book of the Angel Hotel, Abergavenny, where purchases of 19-ins "Broseleys" - and also, in 1860, 10-ins "Straws", a term known to have been used by the Southorns - are recorded from the Bristol firm of Ring (p.633). In 1869 Hewitt (1869: 280) used the term Broseley to mean a clay pipe. The 1879 price-list of Ebenezer Church of Pentonville, London (see 4: VI), lists no fewer than five types of "Broseley Straws": two are described only as "round point" and "best quality", with no stem lengths, but of the others, two were 15 ins long and the third 8 ins long. Several other types of Straws are noted, including two Dutch Straws, one 10 ins long and the other of unstated length, and a 15-ins Hotel Straw. There is also a 15-ins Parlor [sic] Pipe, and an 18-ins Masonic Alderman, Church's longest-stemmed pipe; and in all these terms there is an echo of Southorn names, for Southorn's had, apart from their own Broseley Straws, a Long and a Short Dutch Straw, a Broseley Smoke Room and a Short Broseley Smoke Room, and as noted earlier, an "Alderman or Long Broseley Straw". The 1900 price-list of Scottish clay pipes (Anonymous 1900: 29) notes White's of Glasgow producing a "Broseley" - their number 464. Its cost - 8 1/2d a gross - is within the average for the normal run of pipes listed, and as White's list their "9 inch Straw" (no 171) - note again the use of a Broseley term - at 9 1/2d a gross and pipes of lengths from 15 ins to 20 ins at from 1s2d to 1s9d a gross (nos 110-13) it seems certain that whatever form their "Broseley" took it was not a long-stemmed type. The name continues in the present-day brier-pipe industry, referring to a specific bowl-shape (Anonymous n.d. [9]), though the shape in question has no particularly Broseley or Southorn connections, being in fact very similar to the characteristic C19 TD clay pipe shape (cf e.g. I. Walker 1966a: 87 fig 2). Churchwarden brier pipes are also produced (e.g. Anonymous n.d. [7]; n.d. [29]) - here the term has settled down to the specific meaning of a long-stemmed pipe. It is perhaps significant that this term does not seem to have been plagiarized by C19 pipemakers, and possibly it was a registered term (it was certainly possible to register pipe designs, for as noted in p.157, Church in 1877 successfully charged another pipemaker with fraudulently copying a design he had registered the previous year). (Jewitt (1878: I, 298) quoted some of the terms noted in the Wm Southorn and Co. poster referred to above (Anonymous n.d. [12]) as well as others when listing pipes made by an Edwin Southorn at Broseley.)

The history of the Broseley pipe industry is extremely complex, and D.R. Atkinson's as-yet unpublished study is eagerly awaited. Meanwhile, the C19, when the Southorns first appear (so far as is at present known) as pipemakers at Broseley, is no less obscure than earlier times.

According to R. Thursfield (1863: 82), it was a Noah Roden who first brought to perfection the long Broseleys - Churchwardens and Straws - and that on his death ca.1829 his business was taken over by a William Southorn. When Thursfield - who was a Shropshire man - was writing, the business of William Southorn was being carried on by his two sons, which suggests William had died or at least retired.

Jewitt (1878: I, 297-8, 299) at one point quotes Thursfield's date of ca. 1829 for Roden's death and the taking over of his business by "the late William Southorn" - he is quoting Thursfield extensively throughout, though he gives no reference to his article - then repeats this in a different form, and then in the following sentence says that Roden founded his business ca. 1830 and that either William or an Edwin Southorn (it was not clear which is meant - the latter seems to be implied) took over the business in 1856. He follows this by saying that Southorn received an honourable mention in the 1851 Exhibition.

Thursfield's account is at least straightforward, and his date of ca. 1829 is not incompatible with that of 1823 given to this writer by the present Southorn family (cf Anonymous 1962a), and appearing on a W. Southorn and Co. bill to the Angel Hotel illustrated in FIG 141. Jewitt is correct in stating that Southorn's was given an honourable mention in the 1851 London Exhibition, but this was definitely the firm of William Southorn and Co., for the official publications of this exhibition note this and show that this firm was the only Southorn exhibiting, and a leaflet and the chart of pipe types from the present Southorn factory and now in the writer's possession attest this. Nevertheless, the Edwin Southorn bill to the Angel Hotel dated 1874 and referred to earlier confirms Jewitt's remark that Edwin Southorn also claimed this honour.

Jewitt refers to Edwin as the "eldest" of the late William's sons, and if Edwin took over from his father in 1856, and not from Roden as Jewitt states (which in any case contradicts what he has said earlier), then this would be compatible with the inference drawn from Thursfield's remarks that the father was no longer in the business by 1863, when Thursfield was writing.

At this point, however, unresolved problems arise. Oswald and James (1955b: 225) note a Noah Roden working from 1824 to 1850, which appears to contradict Thursfield's dates. Further, they note a W. Southorn and Co. working from 1850 to 1900. It is not stated that this Southorn took over Roden's business, but if Thursfield had his basic information right but his date wrong then 1850 would appear to be the date Southorn took over Roden's business. Yet Thursfield was writing only 13 years after 1850, and while an error is certainly not impossible, one wonders whether he would have confused 1850 with a date approximately 21 years earlier at a time so shortly after 1850. Oswald and James also note a W. Southorn Brothers making pipes in 1829, which makes one wonder whether there is confusion somewhere among more than one William Southorn and more than one set of brothers. (The Rodens were certainly an old-established pipemaking family in Broseley, for they are recorded working there before 1700; members of the family were also recorded in business after 1850 (Oswald and James 1955b: 255).)

Jewitt says that Edwin Southorn's products usually had E. SOUTHORN, BROSELEY stamped on the stem, and all the pipes seen by the writer at the Southorn factory at Broseley have this stamp on them, the stamp being among the items of equipment noted there.[2] (No Edwin Southorn is listed either in Oswald and James 1955b or Oswald 1960a, though an Edward Southorn, who was working in 1863 and apparently died in 1876, is noted by Oswald (1960a: 91, cf Oswald and James 1955b: 225). A Mrs E. Southern (sic) is listed as working at nearby Bridgnorth between 1831 and 1856 (Oswald 1960a: 91) - these dates coincide curiously with ones suggested for the business of the first William Southorn at Broseley.)

Yet a firm of William Southorn and Co. must also have been in existence about the time when Jewitt was writing (1878), for the chart of pipe types mentioned, earlier notes an honour awarded the firm at the Annual International Exhibition, London, in 1871. Further, these pipes are shown with an identical stamp to that of E. Southorn, but with W. SOUTHORN & Co. for the name. In fact both firms were in existence before 1860, for the Angel Hontel records first note William Southorn supplying pipes to that establishment in 1855 and Edwin in 1857.

Jewitt also mentions (p.299) a William Southorn "of the late firm of William Southorn and Co." working in Broseley but then dismisses him and another Broseley maker rather contemptuously. The "late company" could refer to that of the first William Southorn whose death or retirement has been postulated for 1856, but it is possible that the William Southorn and Co. of the preceding paragraph closed between 1871 and 1878, leaving a single individual of that name carrying on a small business.

Reading Jewitt's praise for Edwin Southorn and then his dismissal of this William Southorn makes it difficult not to feel there may have been some rivalry between the two Southorns - they could have been the two brothers mentioned by Thursfield who had separated.[3] In that way both Southorns could claim their businesses were legitimately descended from the original one whose pipes had been honoured at the 1851 Exhibition, and thus Jewitt's mention of Edwin's being of this company and the leaflet and chart of pipe types of William and Co. of 1871 or later asserting the same for William would be reconciled. As Edwin Southorn is appearing as a separate firm by 1857 on the evidence of the Angel Hotel ledgers presumably the split between Edwin and William took place between 1851 and 1857. This would not conflict with the date of 1856 noted earlier as a possible date for Edwin taking over his father's business.

Edwin, Jewitt notes, was the eldest - which may be a mistake for elder - son of the first William, but if the father's firm was willed to the two sons equally and they subsequently split then perhaps Edwin could not continue to use the firm's old name (his father's) because his putative brother William could use his own name - the same as his father's - for his business. If the post-1871 firm of William Southorn and Co. was in fact no longer in existence by 1878 (as Jewitt may have meant by saying that the pipemaker William Southorn had worked for "the late firm of William Southorn and Co.") then it is probable that it was bought back by Edwin - this would account for the later Southorns having Edwin's stamp and William's leaflet and chart of pipes. As both Edwin and William are appearing in the Angel Hotel ledger-books as late as 1874, the amalgamation if it did take place must have been between 1874 and 1878. William the brother, as already suggested, possibly continued to make pipes on a minor scale, perhaps cheap types.

However, there is yet a further confusion, for John Randall, writing in 1877 on the clay industries along the Severn, refers to the Pitchyard pottery works, of which he said "we know little, only that it stood where the late Mr. E. Southorn carried on his Pipe Works, and where we remember them in ruins more than fifty years ago" (Randall 1877: 23). The ruins seen more than 50 years before - i.e. ca. 1820 - are presumably those of the pottery, not the pipeworks, but if Jewitt can talk of Edwin Southorn in the present tense in 1878 and Randall of a late E. Southorn in 1877 either one writer is in error or there is more than one E. Southorn. If Jewitt is wrong - and his account is sufficiently confused elsewhere to indicate he could be - then Edwin was dead by 1877 and the postulated merger of Edwin's and William's businesses suggested above could be narrowed still further to between 1874 and 1877. Randall, like Richard Thursfield (cf p.27), was a local man - he was a ceramics painter (p.52) - and might have been expected to know local history.

The demise of the firm of William Southorn and Co. prior to 1878 on Jewitt's evidence does appear to contradict the Oswald and James reference to a firm of this name working from 1850 to 1900, unless the latters' reference combines William Southorn the company and William Southorn the company's former employee as related by Jewitt, but the fact that the present derelict factory has a maker's stamp from the E. Southorn business and the advertising matter from the W. Southorn business certainly suggests the two branches did eventually join. (The present factory is that formerly occupied by the firm of A. Smitheman; it was taken over by Southorn's in the 1920s).

Several other Southorns and Southerns are known during the C19 in the Broseley area and two worked at Tamworth, Staffordshire (Oswald and James 1955b: 225; others in Oswald 1960a: 91-5; cf Anonymous 1968b), but their relationship to what appears to be the main family is at present unknown. A Thomas Southern (sic) was working in Bridgnorth in 1824 and was still there in 1851 (Anonymous 1968b), indicating the family was in Bridgnorth as early as it is recorded at Broseley. The Thomas Southorn listed as still working in Oswald and James 1955b and Oswald 1960a was the father of the present representative of the family, and allowing for an average generation was probably a great-grandson of the original William Southorn - according to one source the "sons and grandsons" of the original William Southorn were making pipes in 1908 (Anonymous 1968b).

APPENDIX III:
TECHNICAL TERMS AND PRE-METRIC MEASUREMENTS

APPENDIX III:
TECHNICAL TERMS AND PRE-METRIC MEASUREMENTS

Duhamel du Monceau, the principal source used for the descriptions of C18 north French and Dutch pipe manufacture described, wrote before the invention of the metric system. He thus uses the earlier French systems for measuring dimensions, weights, and volumes. When these terms approximate modern English measurements, as they often do, the English terms are used; thus pied, pouce, livre, once, are given as foot, inch, pound, ounce.

The French foot was approximately 1 ft 0 13/16 ins English, the French inch approximately 1 1/16 ins English. The French inch was divided into 12 lignes. French weights and volumes, like their English counterparts, varied not only at different times but in different areas and (for volumetric amount) with the material to be weighed. The normally-accepted equivalent for the pre-metric French pound is approximately 1 lb 1 5/8 oz English; like its English counterpart, the livre was divided into 16 onces. The quarteron was a quarter-livre, the quintal a hundredweight of 100 livres. The gros was an eighth of an once. The demi-muid, translated here as half-hogshead, was an even more variable amount than the English term. The pinte, the equivalent of the English quart, also came in various sizes, but Duhamel du Monceau specifies - the only time he does - Paris pintes, which was approximately 0.82 Imperial qts (0.93 litres).

The German inch, or Zoll, used prior to the introduction of the metric system, varied by region. The most commonly-used German system of measurement however, at least by the C19, was that from the Rhineland, where there was a foot of approximately 1 ft 0 5/16 ins English divided into 12 Zoll, giving each Zoll a length of approximately 1 1/32 ins English.

Except where it has been felt that it would be better to specify an English measurement on grounds of accuracy (for example with the longer Dutch and German pipes which could reach a length where there was an appreciable difference between French or German inches and the English equivalent) the translation given implies no mathematical accuracy.

Technical and semi-technical terms are given initially in their native language when known, with a translation in brackets if there is an adequate English equivalent. However, the translation given is not necessarily that given by dictionaries, as the terms used sometimes have a special meaning used only in clay pipemaking, and sometimes do not appear in any available dictionary. For example, the implement which Duhamel du Monceau calls a razette (scraper) must derive from raser to shave or skim, but the nearest approaches found were rasette a wire used to tune an organ, and raz a tidal wave. Similarly the term snollen used by Dutch pipemakers to describe the polishing process used on their pipes is normally known only as a slang word for a woman of questionable morals - it is the equivalent of tart. After the first reference, the terms are generally given in their translation if that word is sufficiently accurate; if the term is not the equivalent of that in the English pipemaking trade, the native term is used.

APPENDIX IV:
"Pretty tube of mighty power...Lip of wax and eye of fire"

APPENDIX IV

"Pretty tube of mighty power...Lip of wax and eye of fire"

The identification and dating of a poem eulogizing the tobacco pipe and noting its "lip of wax" resulted in more research than one might have believed possible for such a minor topic.

The poem is quoted by Fairholt (1859: 142-3), Bain (1896: 29-30), and Mackenzie (1957: 196). Fairholt gives it as follows:

Pretty tube of mighty power!
Charmer of an idle hour;
Object of my hot desire,
Lip of wax and eye of fire;
And thy snowy taper waist,
With my fingers gently brac'd;
And thy lovely swelling crest,
With my bended stopper prest;
And the sweetest bliss of blisses,
Breathing from thy balmy kisses;
Happy thrice and thrice agen -
Happiest he of happy men!
Who, when again the night returns,
When again the taper burns;
When again the crickets gay,
Little crickets full of play;
Can afford his tube to feed,
With the fragrant Indian weed;
Pleasure for a nose divine,
Incense of the god of wine!
Happy thrice and thrice agen -
Happiest he of happy men!

and comments

> One of the best and most curious effusions which tobacco smoke has inspired, was the Pipe of Tobacco by Isaac Hawkins Brown [footnote - born 1705, died, 1760]. It is a series of six poems on this theme written - and admirably written - in the style of six different authors [footnote - They are Cibber (the Laureat), Phillips, Thomson, Young, Pope, and Swift. They may be seen in Ritson's Anthology, and Dodsley.] With the selection of one example we will take our leave of the Nicotian Muse; this one was, however according to Ritson supplied to the series by Dr. John Hoadly. It is in imitation of Ambrose Phillips, himself the great originator of burlesque in his Splendid Shilling, a copy in the style of Milton.

Bain, who gives the author as Isaac Hawkins Browne and dates the poem 1736, quotes the first line as "Little tube of mighty power". Three other words are also changed in this version - "warm" for "hot" in line 3, "pretty" for "lovely" in line 7, and "little" for "bended" in line 8 - and two grammatical errors in lines 15 and 16, "cricket's" and "cricket" for "crickets" in both places in the version quoted by Fairholt are corrected; but otherwise the two versions are the same save for some spelling and punctuation variations. Mackenzie, discussing poems written about the taking of tobacco, says "By far the best of the 'imitations' is a graceful parody of The Splendid Shilling by Ambrose Phillips", and then quotes the poem though with the variant wordings in Bain plus "from" for "with" in line 18 and again minor punctuation and spelling differences.

In fact none of the three sources are accurate as to the authorship of this poem (for the unravelling of this tangled skein I am much indebted to Mr George Chowdharay-Best of Basildon, Essex, who answered my query in the 18 June 1970 issue of Country Life, p.1172, letters dated 20 June, 6 July, 25 July, and 25 September 1970; as well as to Mrs Daphne Johnson of Compton Martin near Bristol, letter of 27 August; and Mr Stephen Parks, Associate Curator, the James Marshall and Marie-Louise Osborn Collection, Yale University Library, New Haven, Connecticut, letters of 9 September and 16 October). Mackenzie's wording makes it unclear whether he means The Splendid Shilling was written by Ambrose Philips (the correct spelling of the surname) or the imitation was written by Ambrose Philips, but in the event neither assumption is correct. Fairholt is at least partially correct in saying the author of the imitation is Dr John Hoadly (1711-76) and that it is an imitation of a poem of Ambrose Philips (1675?-1749), but Ambrose Philips - the original "namby-pamby", so called because of his overly-romantic style and overly-obvious rhythm - did not write The Splendid Shilling: the author of this was John Philips (1676-1709).

The imitation first appears in the 330th number of the General Evening Post (8-11 November 1735), the wording being that quoted by Fairholt. No author is given. In 1768 Isaac Hawkins Browne's son (Browne being the correct spelling) said his deceased father had not written this poem but had had it sent him "by an ingenious Friend". The author was named as Hoadly in 1776 and also in 1780 on which occasion a letter from Hoadly (then dead) to the younger Browne was quoted as saying that the elder Browne had so improved the poem that it could fairly be called Browne's own. As the earliest known version - that of 1735 - varies only in the minor changes noted above, plus the addition of an apposite motto from the Aeneid, from the version quoted by Bain, it seems unlikely these are the "improvements" alluded to; and it seems more probable that Hoadly's version had already been altered by Browne by 1735. In its known version the imitation draws on two of Philip's poems, perhaps suggesting that Browne had "improved" Hoadly's version by broadening the basis of the parody. The opening three lines are certainly an imitation of the first two and the fourth lines of the ode "To Signora Cuzzoni. May 25, 1724", which poem begins

Little syren of the stage,
Charmer of an idle age,
Empty Warbler, breathing lyre,
Wanton gale of fond desire,
Bane of every manly art
Sweet enfeebler of the heart.

but some of the verses (perhaps those composed by Browne?) must also come from Philip's "To the Honourable Miss Carteret", published in 1725 for

Then the taper-moulded waist
With a span of ribbon braced,
And the swell of either breast,
And the wide high-vaulted chest

in this poem is obviously the origin of lines 5 to 8 in the parody, while the couplet

Happy thrice, and thrice agen,
Happiest he of happy men

which forms the 11th and 12th and 21st and 22nd lines of the parody is lifted bodily from this poem. Hoadly's original parody may therefore have been lost, and have been written before November 1735, but in any event the reference to the waxed mouthpiece of a pipe must date sometime between 1724 and 1735 and probably to about the latter date. The parody appeared on two other occasions in November and December 1735 and in a booklet the following year, so it was apparently considered popular, which suggests that in its final form at any rate it was written immediately before November 1735.

(The Splendid Shilling does in fact mention smoking, but there is no description of a pipe similar to that of Hoadly and the poem is in quite a different style. John Philips also wrote (in Latin) an "Ode to Henry St John" extolling the virtues of smoking, but again there is no description of a pipe.)

APPENDIX V:
THE TERMS "SAGGAR" AND "MUFFLE"

APPENDIX V:
THE TERMS "SAGGAR" AND "MUFFLE"

The term saggar (in various spellings) is first recorded in 1686 when it is noted - as schrager - in Staffordshire (Plot 1686: 123-4; cf 1720 reference in Rowlands 1968: 51). It is probably a corruption of the word safeguard, possibly confused with the German schrager to prop up, perhaps because of the German pottery workers settling in Staffordshire in the later C17 (so OED vol IX). Shaw, writing of the Staffordshire potteries in 1829, does not quote Plot here though he does so on other occasions, but he does note that ca.1670 the use of lead glaze became very common and that

> to prevent the ornamental parts being injured by the fire, and the glaze being discoloured by the sulphureous vapour from the coals, the employment of Saggers became general; but they were not prepared of determinate proportions of marl. This was a discovery of much later date (S. Shaw 1829: 109, 1970 ed).[1]

The term saggar from the German saigern or seigern to melt was used in the later C16 in the English copper industry (Donald 1955: 183) and could conceivably be related, but the simplicity of the Dutch pijpenpotten strongly suggests that no technical term for saggars was known as late as the early C17 in England. This supposition is strengthened by the German terms for a pipemaking saggar, Kapsel (literally, box) in the Westerwald and Pfeifenkasten (literally, pipe-box) in Brandenburg - the standard German for saggar is Brennkapsel (literally, burning-box.) These terms are all simple or agglutinative terms suggesting the lack of a specific technical term. A reference of ca.1675 notes "Sluggs & Cases" being used in firing stoneware at Lambeth (R. Edwards 1974: 21), and a reference in 1697/8 indicates John Dwight of Fulham was calling saggars "cases" at this time (Weatherill and Edwards 1972: 164, 174-5, 176; late C17 and first-half-of-the-C18 saggars from excavations at Dwight's factory are illustrated in Christophers and Haselgrove 1973: 119 figs 8-10, 119-20 and Christophers, Haselgrove, and Pearcey 1974: 11 nos 1-3), suggesting the term saggar was not in general use before 1700, or at least had not yet spread beyond Staffordshire. "Case" would certainly be analagous to the Dutch and German terms. A mention in the 1690s of a York potter simply uses the term "vessels" for saggars, and at least in the country potteries the term saggar is not used until the C19 (Brears in litt. 26 March 1968).

What may be an early technical term of unknown origin for a saggar, or at any rate for some piece of kiln-furniture closely connected with saggaring, is slug or slugg. It is used, though not closely defined, ca.1675 as noted above, and in a contract involving a Lambeth tin-glaze potter who was to go to Burlington, New Jersey, to establish a tin-glaze pottery "sluggs & Tyles" appear to have been the main kiln-furniture called for. In a Chancery case in 1699 a "great quantity" of slugs was seized at a

Southwark pottery, and in 1748 an agreement involving the Delftsfield pottery in Glasgow refers to two saucers "both burned in the same Slugg" and also to "flat sluggs" (Weatherill and Edwards 1972: 176 and Edwards 1974: 21). In all these instances the term is spelt "slugg". Christophers (Christophers and Haselgrove 1973: 119; Christophers, Haselgrove, and Pearcey 1974: 10) appears to misread Weatherill and Edwards as saying Dwight used "slugs" as well as (see above) "cases".) It is probably this Glasgow reference of 1748 which is being used by Fleming (1923: 78, 84) when he notes the term slug was used for saggar ca.1750 in Scotland, but it does not appear in the Scottish National Dictionary and A. Fenton of the National Museum of Antiquities of Scotland, Edinburgh, suggests the word may not be particularly Scottish (in litt. 8 May 1968). The OED records the term with approximately this meaning quoting Janvier's Practical Keramics (1880) - "rolls or pieces of sandy clay" separating pots. It is possible slugs may have been plates placed inside the saggars and supported by pegs in the saggar-sides with the vessels to be fired sitting on and between the slugs (Archer 1971: 245; R. Edwards 1974: 21). Whatever precisely slugs were, "Moulds and Drums for making Slugs" were also recorded in a 1784 inventory of Richard Frank's Temple Pottery at Bristol (cf Frank and Ring family tree in Appendix IX) (H. Owen 1873: 343).

The English term muffle (ocasionally in the past muffel) for what is essentially a kind of saggar derives (so OED vol VI) from the French moufle with the same meaning and is first recorded in England in 1644. Its use, however, appears to have been restricted to chemistry and metallurgy to describe containers used to heat materials in these fields without the materials coming in contact with the flames - in other words, a form of crucible. In this sense the Germans use the term Muffel, the "u" pronounced long as in the French. A highly unusual use of the term, though effectively the item described acted as a saggar, is noted in an account of gold and silver refining in the C18 (G. Smith 1750 ed: 7 and n.). A mixture of one part clay, one part sand, and two parts horse-manure - though sometimes pipeclay alone was used - was made into a square sheet "to the thickness of a crown piece", then bent into a U-shaped arch and dried. This was then placed over a type of crucible, called by Smith a coppel (see OED entry under cupel), and the whole was then covered with live coals to which more coal was added until cupel and muffle were red-hot. The cupel was then used for assaying gold or silver with lead. The first recorded use of the term in the ceramics field in England is not until 1742, when it is used, as it is in the industry today, in the term muffle-kiln, to denote the inner chamber of the kiln inside which the objects are sealed prior to firing. (Duhamel du Monceau in 1771 describes such a kiln being used by pipemakers in Rouen.)

APPENDIX VI:
ORDINANCES OF THE BRISTOL PIPEMAKERS' GUILD 1652

(Bristol Archives Office ref. 04369(1)

APPENDIX VI:
ORDINANCES OF THE BRISTOL PIPEMAKERS' GUILD, 1652
(Bristol Archives Office ref. 04369(1))

[p.127] ORDINANCES LAWS and Constitutions made Ordained and Established the fifteenth day of September in the yeare of our Lord God One Thousand six hundred fifty and two by the Right Worshipfull the Mayor Aldermen and Comon Counsell of the City of Bristoll which are to be observed and kept by the Company and Felowship of Tobacco pipe Makers within the said City upon such paynes and penaltyes as hereafter followeth

WHEREAS The Art and Skill of makeing tobacco pipes is become a Trade a very usefull and beneficial to the makers of them within this Citty And Whereas many Inhabitants and Free Burgesses of this Citty doo by the use and exercise of that Art and mistery maintain themselves their Wives and Familys and having been bread and brought up Apprentices in the same Artifice none others nor lawfully may but such only as they have been bound Apprentices unto the Consideration whereof hath moved us the Mayor Aldermen and Common Counsell of the said Citty upon humble petition of Humphry Partridge, Phillip Edwards, William Williams, Thomas Smith, John Calloway, Robert Hancock, Robert Powell, Hugh Lewis, Alexander Charington, John Abbotts, John Hunt, Flower Hunt, Thomas Dodding, Thomas Poyte, William Bitt....,* Richard Nunnye, Edward Abbott, Thomas Deane, Abraham Reeves, James Fox, [blank]** Berryman, widdow Jane Wall, widdow Elisabeth Lewis, widdow Lettice Phillips, and Christian Smith being all free Burgesses and Widdows of Burgesses of the said Citty and doo now use and Exercise the said Art of makeing Tobacco pipes within the same (and noe other Art Mistery or Manuall Occupation) To make Constitute and Ordaine and by these presents doe make Constitute and Ordaine That from henceforth said persons abovenamed shall be a Company of Tobacco [p.128] Pipe Makers of and Within the Citty of Bristoll and by that name shall and may sue and be sued and purchase Lands to them and their Successors for ever.

[1] ITEM It is Ordained and Decreed That the said Company shall and Lawfully may meet and Assemble themselves togeather att Convenient tymes to consult for the good of the said Company and shall yearly and every year within one month after the Feast of St Michaell Elect and choose one of the said Company to be their Master and one other of the said Company to be Warden who shall take their Oathes yearly within one week next after their election before the Mayor and Aldermen of the said Citty for the well Execution of their Officies and places as other Masters and Wardens of Companys usually doe within the said Citty

[2] ITEM That all person and persons now free or hereafter to be made free of the said Company shall before the Master and Warden for the tyme being

---

*Possibly Biddell
**Presumably Richard

take their Oathes to be Observant in all things for the good and Welfare of the said Company and for the performence of all Orders and Constitutions made or to be made for the Order and Government thereof

[3] ITEM That whatsoever person shall at any tyme be Elected by the Master of the said Company and shall refuse or delay to take his Oathe for the Execution thereof in manner and form aforesaid shall forfeite the Sume of Four marks the one half thereof to and for the uses of the poor the other half to and for the uses of the said Company And whosoever shall be Elected Warden of the said Company and shall refuse or delay to take his Oathe as aforesaid shall forfeite the Sume of Forty shillings to be divided as the aforesaid for the use aforesaid

[4] ITEM Itt is Agreed that if the Master or Warden shall not doe their Duty in the Execution of their severall places and that Mr Mayor and the Aldermen shall adjudge them to be remiss and negligent and therein eache of them offending shall forfeite the Sume of twenty shillings for the uses aforesaid

[5] ITEM Itt is Ordained that noe other person within this Citty saveing such as are before mentioned or thereafter shall be admitted and received into the said Company haveing first served the Apprentiships within this Citty shall use or Exercise the Art of Tobacco pipe makeing within this Citty nor Sell or rent any within the said Citty unless such Tobacco pipes [p.129] be first had and bought of the said Company or some of them or of such Only as shall be brought up therein as Apprentices within the said Citty according to the Statute upon payne of Forfeite for every tyme offending by doeing the Contrary the Sume of Five Shillings to be divided as aforesaid

[6] ITEM Itt is Ordained that noe Freeman of the said Citty and Company shall keep any Boy in his house Exercising the said Art above the spece of One weeke unless he take him to be his Apprentice upon peyne to Forfeite tenn shillings If he keep him above Eight days nor shall any man keep more Apprentices than One Att any One time unless his Apprentice in being hath served Six years att least. Then may the Master take another and Soe may one man keep two that hath been Master of the said Company And whosoever shall offend by doing the Contrary shall forfeite fourty Shillings to be divided as aforesaid nor shall any man of the said Company employ any woemen or maids or any woemen Stranger in the Exercise of the said Trade Except they be his own Children on payne to forfeite Fourty Shillings to be divided as aforesaid for every tyme offending

[7] ITEM Itt is Agreed that if any Journeyman free of the said Citty and Company (for noe other may be retained be any of the said Company on payne of Twenty shillings) shall be Settled in Service with any of the said Company noe other of the Company may receive or entertain him unless the Journeyman give his Master a fortnights warning or also the Master give him a fortnights warning to depart on payne of Twenty shillings to be divided as aforesaid

[8] ITEM Itt is Agreed that the said Company shall have a Common Hall and there shall meet once a Quarter att the least and every Freeman shall quarterly pay fower pence for his Quarteridge for the use of their Common Hall and Stock and every person thereafter to be made Free of the said Company having first served his Apprenticeshipp within this Citty shall pay for his Income and Entrance the Sume of Three shillings and fower pence for the use aforesaid

[9] ITEM Itt is Agreed that noe Inhabitant of this Citty shall buy to Sell

again within the same Citty any Clay brought to this Citty for makeing of Tobacco pipes But such Clay shall be Bought by the said Company or some of them for the use of makeing Tobacco pipes within the said Citty and not elsewhere on payne to forfeite Twenty Shillings for every tyme offending To the uses aforesaid [p.130]

[10] ITEM Itt is Agreed that the said Company shall and may by and with the Allowance and Approbation of the said Mayor and Aldermen from tyme to tyme make any reasonable or good Orders for regulating of the said Company and whatsoever Freeman of the said Company shall upon Sumons given him Absent himselfe from meeting at Quarter days or any other tyme being lawfully Summoned shall Forfeite and loose the sume of three Shillings fower pence for every tyme offending

[11] ITEM Itt is Agreed that at their tymes of meeting they shall behave themselves Civilly without any approbious or rude language against the Master or any also of the Company upon payne to Forfeite Six Shillings Eight pence for every tyme offending

[12] AND LASTLY The said Company shall and may from tyme to tyme with approbation and Allowance of the said Mayor and Aldermen for the tyme being make any other Orders or By Laws for the better government and welfare of the said Company Soe as they be agreeable to Law and reason and the libertes and priviledges of the said Citty Saveing and reserving power to the Mayor and Comonality to change alter or revoake this or any others that shall be found prejudiciall to the Common good of the Citty or against the Laws of England All which Fines and Forfeitures before mentioned shall be Sued for and recovered by way of Distress or by Action in the name of the Master or Warden for the tyme being or one of them in the Court of the Guildhall holden before the Mayor and Aldermen and upon recovery of them or any of them (the costs of Suite deducted) shall be divided into two parts by the Mayor and Aldermen for the tyme being for the Uses aforesaid In Witness whereof We have hereunto Sett and Affixed the Common Seale of incorporation of the said Citty and Eight and Twentieth day of September One Thousand Six hundred fifty and two and in the yeae of the Maioralty of Joseph Jackson Esquire.

APPENDIX VII:
GLASGOW TOBACCO-PIPE MAKERS

APPENDIX VII: GLASGOW TOBACCO-PIPE MAKERS

AITKENHEAD and DUNLOP (1)

1898-1919 159 Brook Street, Mile End (not listed 1901)

AGNEW, John (2)

1849-50 113 Gallowgate
1851 113, 122 Gallowgate
1852-57 103, 113 Gallowgate

(M. McCusker and Co at 99, 103 Gallowgate in 1858)

ARNOT(T), D. (3)

1880-81 9 New Street, Calton (Arnot 1880, Arnott 1881)

(John Boyd at this address in 1871, John (and Mrs John) McIntyre ditto 1882-1903, Alexander Coghill ditto 1904)

BAIN, Alexander (4)

1851 22 South St Mungo Street

(John Watson 1827-30, McFarlane, Watson and Co 1831-32, Mrs J Watson 1832, Alexander Wylie and Co 1834-42, James Tomilty 1849-50, Patrick McAvoy 1852, Michael McAvoy 1856-60 at this address with changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

BANNERMAN, C. (5)

1842 57 Gallowgate

(see also Carrick Bannerman)

BANNERMAN, Carrick (6)

1862-65 27 Main Street, Calton

(see also C. Bannerman)

BANNERMAN, John (7)

1856-60 374 Gallowgate

BOWSTEAD, W. (and Co) (8)

1857 61 Duke Street
1858 not listed - Eastern Tobacco-Pipe Works and David Gilchrist at this address
1859-60 61 Duke Street
1861 56 West Howard Street
1862 73 West Nile Street
1863 (73 West Nile Street)
(61 Duke Street)

("and Co" added in 1857 and 1862-63)

(Eastern Tobacco-Pipe Works at 61 Duke Street 1857-58,
David Gilchrist ditto 1858,
Michael McAvoy ditto 1862)

BOYD, John (9)

1871 9 New Street, Calton

(D. Arnot(t) at this address 1880-81,
John (and Mrs John) McIntyre ditto 1882-1903,
Alexander Coghill ditto 1904)

BRIDGETON WORKS (10)

1861-63	44, 46 Dale Street, Bridgeton

(Nimmo and Co at number 44 in 1849,
Hugh Divine ditto 1854,
John Nimmo at numbers 44 and 46 in 1860 and 1865, at number 46 only in 1861-64)

BROWN, John (11)

1833	33 Saltmarket
1834	12 Kirk Street, Calton

(a John Brown, no trade given, listed at 33 Saltmarket 1832)

BURNS, William (12)

1900-02	7 Ward Street
1903-04	21 Union Place, Anderston

CALEDONIAN PIPE WORKS (13)

see (a) William Murray (b) Thomas Davidson jr

CAMERON, C. (14)

1872-74	368 Gallowgate
1875-81	not listed
1882-83	9 Yate Street, Camlackie

(*Cameron and McInally* at 368 Gallowgate in 1871,
J. McInally ditto 1876,
P. Christie ditto 1878)

CAMERON and McINALLY (15)

1871	368 Gallowgate

(*C. Cameron* at this address 1872-74,
J. McInally ditto 1876,
P. Christie ditto 1878)

CARMICHAEL and CHRISTIE (16)

1855	13 Drygate

(*Alexander Taylor* at this address 1857,
John Shaw ditto 1860-68)

CHRISTIE, John (17)

1863-66	88 McPherson Street
1867-68	not listed
1869-70	9 McFarlane Street

CHRISTIE, P. (18)

1878	368 Gallowgate

(*Cameron and McInally* at this address 1871,
C. Cameron ditto 1872-74,
J. McInally ditto 1876)

CHRISTIE, William (19)

1857	business started by William Christie sr (Anonymous 1964b)
1860-70	99 Gallowgate
1871-75	178 Gallowgate
1876	180 Gallowgate
1877	20 Craignestock Street
1878	30 Craignestock Street (number 30 possibly an error for 20)
1879	not listed
1880-81	20 Craignestock Street
1882-1903	16 Craignestock Street
1904-50	16, 20 Craignestock Street

(in 1894 William Christie sr put William jr in charge of the Edinburgh branch of the firm, which continued with the third generation of the family until 1962, though the manufacture of clay pipes stopped ca.1942 leaving only the production of blocks of whiting for doorsteps (Anonymous 1964b))

COGHILL, Alexander (20)

1826	16 St Andrew Square
1827	Ropewalk Lane
1828-48	4 Ropewalk Lane (not listed 1838)
1849-51	3 Ropewalk Lane
1852-56	4 Ropewalk Lane
1857-58	Eagle Lane, 53 Maxwell Street
1859-99	4 Ropewalk Lane
1900-1903	not listed
1904	9 New Street, Calton

(1873 onwards, importer of French and meerschaum pipes and cigar merchant; 1880 adds German pipes)

(George Coghill at 4 Ropewalk Lane 1853-56,
David Coghill ditto 1859-98,
John Gallacher ditto 1862-63,
Glasgow Tobacco Clay Pipe Manufactory ditto 1880-88,
George Coghill at Eagle Lane, 53 Maxwell Street 1857-72,
John Boyd at 9 New Street, Calton 1871,
D. Arnot(t) ditto 1880-81,
John (and Mrs John) McIntyre ditto 1882-1903)

Alexander Coghill is also recorded as a silversmith at various addresses, including 3 Ropewalk Lane, from 1837, sometimes with a William Coghill; in 1857 an Alexander Coghill sr is listed as a silversmith only and an Alexander Coghill jr is listed as a pipemaker at Eagle Lane, 53 Maxwell Street (see above). There were thus at least two generations of Alexander Coghill in the pipemaking business. Home addresses are given as follows:

1831-37	20 Stockwell Place
1838-52	4 Ropewalk Lane
1853-58	Ashton, Greenock

COGHILL, David (21)

1859-98 4 Ropewalk Lane

(Alexander Coghill at this address 1828-48, 1852-56, 1959-99,
George Coghill ditto 1853-56,
John Gallacher ditto 1862-63,
Glasgow Tobacco Clay Pipe Manufactory ditto 1880-88

David Coghill is listed in the general entries for 1859 as "manager of tobacco-pipe manufactory, 4 Ropewalk Lane", with his home at 131 Rose Street South.

COGHILL, George (sr) (22)

1853-56	4 Ropewalk Lane
1857-72	Eagle Lane, 53 Maxwell Street

("sr" added 1867-71)

(Alexander Coghill at 4 Ropewalk Lane 1828-48,
David Coghill ditto 1853-56,
John Gallacher ditto 1862-63
Glasgow Tobacco Clay Pipe Manufactory ditto 1880-88,
Alexander Coghill at Eagle Lane, 53 Maxwell Street 1857-58)

(Eagle Lane, 53 Maxwell Street, property apparently disappeared when St Enoch's Station was built over the area)

COGHILL, Neil (23)

Appears in general entries for 1857-59 as "a tobacco-pipe manufactory, Eagle Lane; house, 224 Sydenham Place, Gorbals" but is not listed under tobacco pipe makers in the trades section. In 1860 and 1861 a Neil Coghill appears as a victualler at 104 George Street.

COLQUHOUN, James (24)

Apparently the earliest-known potter in the Calton area, he petitioned in 1668 to be allowed to make pottery and was said to have made red clay tobacco-pipes of clay from Lumlock, NE of the Calton (Fleming 1923: 119)

CORPORATION OF TOBACCO-SPINNERS OF GLASGOW (25)

According to Fleming (1923: 242-3), William White took over the pipemaking branch of this Corporation in 1805. According to Eyre-Todd (1934: 271-2 citing the city records; this is presumably the source of the information quoted to Omwake in 1957a: 7) the Society of Tobacco-Spinners successfully petitioned 8 September 1779 to become a "legal subsisting society" and possibly they changed their name to the above at that date

DAVIDSON, Thomas jr and Co (26)

1861	listed in the general entries as "of Murray and Co" and living at 16 Ure Place
1863-72	33, 41 Garngadhill
1873-90	33 Garngadhill
1891-93	Caledonian Pipe Works, Garngadhill
1894-97	Caledonian Pipe Works, 33-41 Garngadhill
1898-1901	Caledonian Pipe Works, Millerfield Road, Springfield, Dalmarnock
*1902-03	Millerfield Road, Springfield
1904	(Caledonian Pipe Works) Millerfield Road, East
1905	(Caledonian Pipe Works) Millerfield Road, Dalmarnock
1906-10	Millerfield Road, Dalmarnock

*Caledonian Pipe Works listed 1902-03 as an additional, separate, entry

London trade directories indicate an office there from 1869; 1885 entry says the firm had been in business for "over half a century"

DIVINE, Hugh (and Co) (27)

1854	44 Dale Street, Bridgeton
1855	21 McFarlane Street

("and Co" added in 1855)

(*Nimmo and Co* at 44 Dale Street in 1849,
John Nimmo ditto 1860 and 1865; also at number 46 1860-65,
Bridgeton Works at number 44 and also at number 46 1861-63,
William C. Wood at 21 McFarlane Street 1857-62)

EASTERN TOBACCO-PIPE WORKS (28)

1857-58	61 Duke Street

(*William Bowstead* at this address 1857, 1859-60, and 1863,
David Gilchrist ditto 1858)

FENTON, J. (29)

1879-80	65 Cumberland Street, Calton

(*McLuckie and Prentice* at this address 1873-74,
McLuckie and Fenton ditto 1875-77)

FERON, (J.)E. (30)

1869	Vicar Alley, off Castle Street
1870-73	14 Vicar Alley, off Castle Street

1874 15 Craighall Road
1875-1904 395 Keppochhill Road (not listed 1900)
1905-11 Craighall Tobacco Works, 443-445 Pinkston Road

1869-70 J.E. Feron, 1871 onwards E. Feron

1870 "and saggar" added after name

1905-11 "(clay)" added after name

FRAZER, James (31)

1876 275 Parliamentary Road
1877-80 not listed
1881-82 275 Parliamentary Road

(Duncan McDougall at this address 1877-88 and at number 277 1851-76 - possibility of a typographical error)

GALBRAITH, Malcolm (32)

1848-54 15 Drygate

(number 13 occupied by Carmichael and Christie 1855, Alexander Taylor 1857, and John Shaw 1860-68 - possibility of the two premises being one)

GALLACHER, John (33)

1862-63 4 Ropewalk Lane

(Alexander Coghill at this address 1828-48, 1852-56, 1859-99,
George Coghill ditto 1853,
David Coghill ditto 1859-98,
Glasgow Tobacco Clay Pipe Manufactory ditto 1880-88)

GILCHRIST, David (34)

1858 61 Duke Street

(W. Bowstead at this address 1857, 1859-60,
1863,
Eastern Tobacco-Pipe Works ditto 1857-58,
Michael McAvoy ditto 1862)

(THE) GLASGOW CLAY PIPE COMPANY LTD (35)

1880-82 200 Great Eastern Road (listed in 1881 under "The" and in 1882 under both "The" and "Glasgow")

(manager in 1880 W. Abbott)

("office, 57 Hope Street" added after 1881 entry)

(J. Liston jr and Co at this address 1877-79)

GLASGOW PIPE MANUFACTORY (36)

see Duncan McDougall

GLASGOW TOBACCO CLAY PIPE MANUFACTORY (37)

1880-88 4 Ropewalk Lane

(Alexander Coghill at this address 1828-48,
1852-56, 1859-99,
George Coghill ditto 1853-56,
David Coghill ditto 1859-98,
John Gallacher ditto 1862-63)

GRANT, William jr (38)

1845-46 87 King Street, Calton

(Duncan McDougall at this address 1847-48, 1848 entry possibly an error)

GRAVEN, J. (39)

1879 14 Townmill Road (no initial given
1880-81 14 Alexandra Parade

HALLIDAY, Arthur (40)

1783 High Street ("pipe maker")

HAMILTON, Alexander and Scott (41)

1803-17 20 High Street ("pipemakers")

HAMILTON, J. and J. (42)

1817-18 300 High Street
1819 229 High Street
1820-22 300 High Street

(from 1814 a James Hamilton and Co were tobacconists at 300 High Street; they appear from 1826 to 1828 at 54 High Street)

HAMILTON, John (43)

1877-85 23 Kirk Street, Calton
1886-87 72 Kirk Street, Calton

HANLON, A. (44)

1878 96 Taylor Street

HARTLEY, John (45)

1828-29 46 Canning Street, Calton

HERRIOTT, James (46)

1875 Ayton Place, Old Vennel

(T. Short at this address 1807-11,
W. Short ditto 1815
Mrs Short ditto 1816-21,
Herriott and McIlwraith ditto 1876-77)

(photograph of Old Vennel taken in 1868 appears in Butt 1971: 65)

HERRIOTT and McILWRAITH (47)

1876-77 Ayton Place, Old Vennel

(T. Short at this address 1807-11,
W. Short ditto 1815,
Mrs Short ditto 1816-21,
James Herriott ditto 1875)

(photograph of Old Vennel taken in 1868 appears in Butt 1971: 65)

HOGAN, Mary (HAGAN in 1905) (48)

1905-08 47 Kerr Street (not listed in 1906)

HOLDEN, John (49)

According to Fleming (1923: 132) Holden set up as a potter in the Gorbals in the early part of the C18 using the Shawfield clays, and included red clay tobacco-pipes among his products. The factory closed in 1781 having been a "prosperous and well-known place"

KERR and BOYD (50)

1816-17 85 Candleriggs

KILPATRICK, Thomas (51)

1911 135 Adelphi Street, Bridgeton

"(clay)" appears after name

LEE, James (52)

1842-50 16 Rottenrow ("Street" appears after Rottenrow 1847-48)

LISTON, J. (53)

1873 Napiershall Street

(see also *J. Liston jr and Co*)

LISTON, J. jr and Co (54)

1877-79 200 Great Eastern Road

(see also J. Liston)

(Glasgow Clay Pipe Company at this address 1880-82)

MATHER and COCHRANE (55)

1873 51, 53 Ladywell Street

MILLER, John (56)

1866-67 96 London Road
1868 90 London Road

(Miller and Kerr at 90 London Road 1869,
John Waldie and Co ditto 1870-94)

MILLER and KERR (57)

1869 90 London Road

(John Miller at this address 1868,
John Waldie and Co ditto 1870-94)

MILLROAD POTTERY (58)

36 Millroad Street

According to Fleming (1913: 311) the last remains of this pottery was at this number. "This pottery was a going concern up till 1854 but for a number of years prior to that date it was used solely for the manufacture of clay tobacco pipes. The owners of the property were for many years a family named Wise, one of whom had been a workman with the Crown Derby China Works". Fleming notes that quite a number of Staffordshire workmen had been in Scotland since 1750, when the Delftsfield Pottery started. James Wise, the second generation to own Millroad Pottery, D 1810; his son was the James who in 1854 gave up the works, erected a tenement on part of the grounds, and collected rents from it until his death "some forty years ago" (i.e. ca. 1873). (From this it would appear that James Wise II was making the clay pipes.) A garret room, the only original building left yielded "a few years ago" ca. 100 old moulds, the earliest of which was dated 1791. Early products were red earthenware bowls, milk dishes, and saltdishes of local clay, also red earthenware paint-pots.

MOONEY, James and Sons (59)

1931	235 Millroad Street, Calton SE

"(late of John Waldie and Co)" after name

MURRAY, William (sr; and Co; MURRAYS and Co) (60)

1830	Caledonian Pottery, tobacco pipe and grindings works, Port Dundas	(Murrays and Co)
1831-32	not listed	
1833-40	Caledonian Pottery, Townhead	(Murrays and Co)
1841	Caledonian Pipeworks, Townhead	(Wm Murray sr)
1842	Caledonian Pottery, Townhead	(Wm Murray sr)
1843-51	Caledonian Pipeworks, 33 Garngadhill	(Wm Murray sr)
1852	23 Garngadhill*	(Wm Murray sr)
1853-61	33 Garngadhill (not listed in 1857)	(Wm Murray sr 1853-59, Murray and Co 1860-61)

Taken over by Thomas Davidson jr and Co whose firm is first listed in 1863, Davidson being listed in the general entry in 1861 as "of Murray and Co"

*number 23 possibly an error for number 33

(a William Murray and Co listed 1856 at 63 Duke Street)

(1858 supplied pipes to the Hudson's Bay Company in London (Krause 1969-70))

In 1840 orders were to be left at 8 Argyll Street, the office of T. Murray, bookseller and stationer. This Murray, a relative of the pottery and pipemaking family, was the publisher of Murray's railway timetables and diaries; he appears at 641 Argyll Street from 1820, at number 643 in 1825 and 1826, and in the following years at number 8. In 1966 the firm was at 90 Mitchell Street.

In 1840 orders for a James Murray were also to be left with T. Murray; James Murray first appears 1826 as "fire-brick and grinding works, Port Dundas".

In 1840 Wm Murray sr of the firm lived at 26 Canning Place and Wm Murray jr at 45 Garngadhill; an A. Murray also of Murray or Murrays and Co lived at 175 Garngadhill and is noted (Neil 1913: 323) as being chairman of Murrays and Co in 1835.

Fleming (1923: 221-5) recounts the history of the Caledonian Pottery, dating its foundation to 1790, though saying it did not appear to have been fully operational until nearly 1800. His account appears to have been summarized by Hughes (1961a: 212-3). An earlier account by Fleming (1913: 313) gives some divergent statements, including one that the business was founded in 1780, an error which is explained by Neil (1913: 319). In fact, the business appears to have started in 1801 (Neil 1913: 320 and directory entry). Fleming is not a reliable source, and in at least two instances his 1923 statements are at variance with directory evidence. For example, he claims it was in 1840 that a Murray - James - was first associated with the Pottery, as a co-owner with a James Couper, but in fact the name Murray is associated with the firm from 1826 (a fact also confirmed by other evidence cited by Neil 1913: 323); while the Murrays and Grosvenor partnership said by Fleming to have started in 1867 is noted in 1864. The Murray and Couper partnership is recorded in the directories from 1841, but the Murray in question is William jr, not James, the point being that at this time the two Murrays split and William sr took the pipemaking branch. (Fleming (1923: 224) does appear to refer to the son as W.F. Murray when he notes the father was a brother of the founder of the railway-timetable and diary publisher - presumably the T. Murray noted above - but according to Neil (1913: 323, 325) there were three generations of Murrays associated with the firm, and directory entries indicate W.F. Murray was the last Murray to be associated with the firm: W.F. Murray and Co are listed 1895-98 at Rutherglen, where the firm had moved ca.1872).

The name Caledonian Pottery first appears in a directory in 1807; references to the name are noted by Neil (1913: 321) in 1805 and 1807, but in 1803 he notes it being called simply the Glasgow Pottery. (The 1805 reference to the Caledonian Pottery is hardly auspicious - an engraver and a potter from the firm were hanged for forging bank-notes.)

From 1811 to 1820 the Delftfield Pottery, founded in 1749, was joined to the Caledonian Pottery, according to Neil (1913: 323).

MURRAY, William and Co (61)

1856 63 Duke Street

(a William Murray (sr; and Co; Murrays and Co) appears at the Caledonian Pottery and/or Pipeworks for the period 1830-6!)

(the following pipemakers appear at 61 Duke Street, immediately after Murray's year at number 63:
W. Bowstead 1857, 1859-60, 1863,
Eastern Tobacco-Pipe Works 1857-58,
David Gilchrist 1858,
Michael McAvoy 1862;
the two premises may have been the same)

McAVOY, Michael (62)

1856-60	22 St Mungo Street
1861	not listed
1862	61 Duke Street

(John Watson 1827-30, McFarlane, Watson and Co 1831-32, Mrs J. Watson 1832, Alexander Wylie and Co 1834-42, James Tomilty 1849-50, Alexander Bain 1851, Patrick McAvoy 1852 at the first address which changes from St Mungo Street to St Mungo Lane to South St Mungo St back to St Mungo Street;
W. Bowstead listed at second address 1857, 1859-60, 1863,
Eastern Tobacco-Pipe Works ditto 1857-58,
David Gilchrist 1858)

McAVOY, Patrick (63)

1852	22 South St Mungo Street

(John Watson 1827-30, McFarlane, Watson and Co 1831-32, Mrs J. Watson 1832, Alexander Wylie and Co 1834-42, James Tomilty 1849-50, Alexander Bain 1851, Michael McAvoy 1856-60 at this address which changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

McCUSKER, M. and CO (64)

1858	99, 103 Gallowgate

(John Agnew at 103 and 113 Gallowgate 1852-57, William Christie at 99 in 1860-70)

McDOUGALL, Duncan (D. McDOUGALL and Co; D. McDOUGALL and Co Ltd; C.B. and McDOUGALL Ltd; also known as the GLASGOW PIPE MANUFACTORY) (65)

Fleming (1923: 243) says the firm was founded in 1810, but this is not correct. The firm's tradition suggests it was founded in 1846; the directory general entry for 1846 indicates Duncan McDougall was then manager of Murray's Caledonian Pipe Works. Conceivably 1810 could have been when McDougall - "a fine type of Highlander" according to Fleming - was born (cf his death ca.1869 noted below)

1847	87 King Street, Calton
1848	(87 King Street, Calton) (74 North Hanover Street)*
1849-50	74 North Hanover Street
1851-76	277 Parliamentary Road
1877-88	275, 277 Parliamentary Road
1889-1967	18 Charles Street, St Rollox**
1968	51 Hobden Street - office only

*two separate entries one below the other; the King Street entry may be an error

**Fleming (1923: 246) refers to McDougall's being at 70 Charles Street, but this is incorrect

"(for export and home trades); telegraph address 'Gartcraig' telephone No 1299" added from 1891

Duncan McDougall 1847-70 (not listed 1849-51)
D. McDougall and Co 1871-1908 (not listed 1879, 1890)
D. McDougall and Co Ltd 1909-64
C.B. and McDougall Ltd 1965-68
Glasgow Pipe Manufactory 1849-64, 1875-79, 1881-1900; from 1875 to 1879 and from 1881 to 1888 it appears at 277 Parliamentary Road while from 1877 to 1888 McDougall's appears at number 275. James Frazer is listed at number 275 in 1876 and 1881-82.

In 1868 Duncan McDougall appears in the general entry for the last time. D. McDougall appears in 1870. This is presumably the Donald McDougall, a son of Duncan, who went into partnership with Campbell Rodger (1840-1924) in

1871 forming D. McDougall and Co. Duncan McDougall therefore presumably died ca.1869. Campbell Rodger subsequently bought out Donald McDougall (the general entries suggest Donald went into the wine and spirit business ca.1873) and the Rodger family remained in the company until it closed, Campbell being succeeded by a son, Patrick Wylie Rodger (1879-1940) - mentioned by Fleming - who entered the firm in 1897 and whose son M.F. Rodger was a director of the firm at its closure. According to Mr M.F. Rodger the appearance of the Glasgow coat of arms on the firm's notepaper was said to be a privilege granted because the firm was among the first hundred incorporated in the city (for an account of the firm and its manufacturing process see Walker and Walker 1969).

In 1852 Duncan McDougall is listed in the general entry as living at 121 North Montrose Street. In 1853-55 his address is 30 Grafton Square but in 1856 it is again 121 North Montrose Street. In 1857-62 he is listed at both 129 Grafton Terrace and Dunnerbuck, Bowling (the latter is a residential area down the Clyde; the 1857 entry reads "Drumbuck" without the Bowling). In 1866 he is not listed but in 1867-68 he appears both at 157 West Campbell Street and Dunnerbuck, Bowling. As noted above these are his last appearances, for he is not listed in 1869 and in 1870 D. McDougall appears, being listed at 65 Shamrock Street.

London trade directories indicate an office there from 1878; 17 Philpot Lane, E.C.; entry in 1890s notes the firm was "the largest export manufacturer in the world".

McFARLANE and Co (66)

1829-30 24 St Mungo's Lane

(apparently joins with John Watson to form McFarlane, Watson and Co)

McFARLANE and ABERCROMBIE (67)

1856 10 George Street

(McFarlane and McKay at this address 1857)

McFARLANE and McKAY (68)

1857 10 George Street

(McFarlane and Abercrombie at this address 1856)

McFARLANE, WATSON and Co (69)

1831-32 22 [St] Mungo's Lane

(Apparently an amalgamation of John Watson and McFarlane and Co)

(John Watson 1827-30, Mrs J. Watson 1832, Alexander Wylie and Co 1834-42, James Tomilty 1849-50, Alexander Bain 1851, Patrick McAvoy 1852, Michael McAvoy 1856-60 at this address which changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

McILWRAITH, R. (70)

1877-79 167 Graeme Street

McINALLY, J. (71)

1876 368 Gallowgate

(Cameron and McInally at this address 1871,
C. Cameron ditto 1872-74,
P. Christie ditto 1878)

McINTYRE, John (72)

1882-97 9 New Street, Calton
1898-1901 Mrs John McIntyre listed at this address
1902-03 back to John McIntyre at this address

for Mrs John McIntyre, McIntyre himself probably dying in 1897

(John Boyd at this address 1871,
D. Arnot(t) ditto 1880-81)

McINTYRE, Mrs John (73)

1898-1901 9 New Street, Calton
1902-03 John McIntyre listed at this address, as he had been for 1882-97; but this is probably an error for Mrs John McIntyre

(John Boyd at this address 1871, D. Arnot(t) ditto 1880-81
John McIntyre ditto 1882-97)

McLA(U)CHLAN, Thomas (74)

1887-1927 15 Anderson Street (not listed 1891, 1910)
1828-38 21 Lambert Street

"McLauchlan" in 1887, "McLachlan" in all subsequent entries

McLUCKIE and FENTON (75)

1875-77 65 Cumberland Street, Calton

(McLuckie and Prentice at this address 1873-74,
J. Fenton ditto 1879-80)

McLUCKIE and PRENTICE (76)

1873-74 65 Cumberland Street, Calton

(McLuckie and Fenton at this address 1875-77,
J. Fenton ditto 1879-80)

NEWTON and RAE (77)

1864-66 90 High Street

(Charles Stewart at this address 1860-61)

NIMMO and Co (78)

1849 44 Dale Street, Bridgeton

(Hugh Divine at this address 1854,
John Nimmo ditto 1860 and 1865; also at
number 46 1860-65,
Bridgeton Works at number 44 and also at
number 46 1861-63)

NIMMO, J. (79)

1834 Dale Street, Bridgeton

(listed as a grocer 1832 and 1833)

NIMMO, John (80)

1860 44, 46 Dale Street, Bridgeton
1861-64 46 Dale Street, Bridgeton
1865 44, 46 Dale Street, Bridgeton

(Nimmo and Co at number 44 1849,
Hugh Divine ditto 1854,
Bridgeton Works at number 44 and also at
number 46 1861-63)

NIMMO, J. and T. (81)

1846 24 Dale Street

(Thomas Nimmo at this address 1840-45)

NIMMO, Thomas (82)

1835-36 Dale Street, Bridgeton
1837-39 16 Dale Street, Bridgeton
1840-45 24 Dale Street, Bridgeton

(J. and T. Nimmo at 24 Dale Street 1846)

RAE, William (83)

1836-39 113 High Street

RATTRAY, J. (84)

1882 220 Garngadhill

REID, James (and Co) (85)

1883-92 180 Gallowgate
1893 26-34 Kerr Street
1894 26 Kerr Street
1895-1904 32 Kerr Street
1905-12 28 Kerr Street (not listed 1908)

("and Co" added from 1893)

1905-07 "(and pipe-clay merchants)" added after name; 1909-12 "(clay)" added after name

(William Christie at 180 Gallowgate 1876, and at number 178 1871-75,
John Waldie and Co at 32 Kerr Street 1895-1904 and at number 28 1905-18)

SCROGGIE, J. (86)

1873-82 8 Greenside Lane
1883 Rose Street, S.S.
1884-86 23 Rose Street, S.S.

SHAW, John (87)

1860-68 13 Drygate

(Carmichael and Christie at this address 1855,
Alexander Taylor ditto 1857,
Malcolm Galbraith at number 15 1848-54)

SHORT, T. (88)

1807-11 Ayton Court, Old Vennel (not listed 1808)

(M. Short at this address 1814 as a ropemaker;
W. Short at this address 1815 as a pipemaker,
Mrs Short ditto 1816-21,
James Herriott ditto 1875,
Herriott and McIlwraith ditto 1876-77)

(photograph of Old Vennel taken in 1868 appears in Butt 1971: 65)

SHORT, W. (89)

1815 Ayton Court, Old Vennel

(T. Short at this address 1807-11 as a pipemaker,
M. Short at this address 1814 as a ropemaker,
Mrs Short at this address 1816-21 as a pipemaker,
James Herriott ditto 1875,
Herriott and McIlwraith ditto 1876-77)

(photograph of Old Vennel taken in 1868 appears in Butt 1971: 65)

SHORT, Mrs (90)

1816-21 Ayton Court, Old Vennel

(T. Short at this address 1807-11 as a pipemaker,
M. Short at this address 1814 as a ropemaker,
W. Short at this address 1815 as a pipemaker,
James Herriott ditto 1875,
Herriott and McIlwraith ditto 1875-77)

(photograph of Old Vennel taken in 1868 appears in Butt 1971: 65)

SINCLAIR, D. (91)

1803-08 382 Gallowgate (1802 and 1804 directories unavailable)

STEUART, C. and Co (92)

1856-59 20 Graham Square
1860 90 High Street, but possibly either name or address confused with Charles Stewart listed 1860-61 at this address

STEWART, Charles (93)

1860-61 90 High Street

(cf C. Steuart and Co at this address 1860,
Newton and Rae at this address 1864-66)

STEWART, T. (94)

1828-32 25 Saltmarket

TAYLOR, Alexander (95)

1857 13 Drygate

(Carmichael and Christie at this address 1855, John Shaw ditto 1860-68)

THOMAS, John M. (96)

1853 27 North Woodside Road

TOMILTY, James (97)

1849-50 22 South St Mungo's Street

(John Watson 1827-30, McFarlane, Watson and Co 1831-32, Mrs J. Watson 1832, Alexander Wylie and Co 1834-42, Alexander Bain 1851, Patrick McAvoy 1852, Michael McAvoy 1856-60 at this address which changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

WALDIE, John and Co (98)

1870-94 90 London Road (not listed 1891)
1895-1904 32 Kerr Street, Calton
1905-18 28 Kerr Street, Calton (not listed 1908)
1919-27 15 Kerr Street, Calton
1928-29 115 Kerr Street, Calton S.E.

1905-07 "(and pipe-clay merchants)" added after name; 1909-10 "(clay) also pipe-clay and bath brick and firelighter merchants" added after name

(John Miller at 90 London Road 1868,

Miller and Kerr ditto 1869,
James Reid and Co at 32 Kerr Street 1894-1904,
James Reid and Co at 28 Kerr Street 1905-12)

WARNOCK, J. (99)

1875	16 Kirk Street, Calton
1876	14 Craignestock Street

(*William Christie* listed at 16 Craignestock Street 1882-1903 and at 16, 20 Craignestock Street 1904-50; also at number 20 1877-81)

WATSON, John (100)

1824-26	37 St Mungo Street
1827-30	22 St Mungo Street (not listed 1829)

(*McFarlane, Watson and Co* 1831-32, *Mrs J. Watson* 1832, *Alexander Wylie and Co* 1834-42, *James Tomilty* 1849-50, *Alexander Bain* 1851, *Patrick McAvoy* 1852, *Michael McAvoy* 1856-60 at this address which changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

WATSON, Mrs J. (101)

1832	22 St Mungo's Lane

(*John Watson* 1827-30, *McFarlane, Watson and Co* 1831-32, *Alexander Wylie and Co* 1834-42, *James Tomilty* 1849-50, *Alexander Bain* 1851, *Patrick McAvoy* 1832, *Michael McAvoy* 1856-60, at this address which changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

WATSON, J. and Co (102)

1832	22 St Mungo's Lane, possibly a doublet with either Mrs J. Watson at this number for this year only and/or McFarlane, Watson and Co at this number 1831-32

WHITE, William (and Son; and Sons; and Son (Glasgow) Ltd) (103)

1805	business founded according to directory advertisements of 1877 and 1893; according to Fleming (1923: 242-3) William White took over the pipemaking branch of the Corporation of Tobacco-Spinners of Glasgow in this year. The 1805 directory lists William White - at the Great Dovehill address he was to subsequently occupy as a pipemaker - as having a ropework (1804 and 1802 directories unavailable; not listed in 1803 or earlier)
1806-17	Great Dovehill (not listed 1808)
1818	37 Great Dovehill
1819-20	not listed
1821	38 Great Dovehill
1822-23	36 Great Dovehill
1824	Gibson Street, Gallowgate
1825	15 Gibson Street, Gallowgate
1826	Gibson Street
1827-66	15 Gibson Street, Gallowgate ("Gallowgate" omitted after 1828; number 15 omitted 1846-64)*
1867	15 Cross Gibson Street
1868-1900	15 Gibson Street (not listed 1891)
1901-55	15 Gibson Street East

*a ropeworks listed at this address 1828

noted as a brier-pipe importer 1879

"(for foreign, colonial, and home trades)" added 1884

William White 1806-45
William White and Son 1846-64
William White and Sons 1865-96
William White and Son 1897-1926
William White and Son (Glasgow) Ltd 1927-55

A description of the Gibson Street premises written in 1954 (Samson 1954: 9-12) begins as follows: "You would never believe, as you turn into the narrow roadway and look up at the old red brick facing of the three-storey building, that this was at one time the last word in factory construction, and was, in fact, built round an existing dwelling-house.

"Once inside the big street door, we walked through the main office and out on to a cobbled courtyard, where, many moons ago, horses and carriages drew up for the fashionable morning drive in neighbouring Glasgow Green.

"There, in one corner, is the entrance to the old house, and a winding staircase that is reckoned to be 200 years old is still used to reach the top floor."

The Gibson Street property was bought from White's by Glendale Footwear Co Ltd, who subsequently sold off parts, retaining about a third; they use 71-73 Moncur Street as their address. All White's old equipment and files were scrapped. Outwardly the building retains its original appearance, and though there is said to be no sign of the old dwelling-house referred to above, the date 1788 appears on the building front (Glendale Footwear Co Ltd in litt. 12 January 1968).

This property must be that described by Fleming (1923: 243) as "the present fine pile of buildings with its imposing frontage, extending from Gibson Streeet to Bain Square" which was five [sic] storeys high and built in 1869. If Fleming's date is correct, this expansion might account for the rather curious address given above for 1867; a directory entry in 1879 indicates the factory was in Bain Square and Moncur Street, parts noted by Fleming and the Glendale Footwear Company. Assuming again that Fleming's 1867 date is correct, the 1788 date on the present building must be explained as belonging to the original building used by White from 1824 - presumably the one referred to by Samson - and re-incorporated in the new structure.

Again according to Fleming, William White was succeeded in the business by his son and grandson, but by the time of his writing (1923) the proprietor was an R.H. Laing. As early as 1831 White's residence is given as North Woodside Road; during the period 1841-52 it is given as Violet Vale, North Woodside Road, but "and Son" appears after the name in 1846 (cf records above) which suggests the original William White died ca.1845.

Once more according to Fleming, the new factory had six kilns each with a capacity of 300 gross and the firm had more than 700 varieties of patterns.

London trade directories indicate an office there from 1884; entry notes the firm was founded in 1805 and in the 1880s notes the firm was "the largest manufacturer in the world".

WIDSON, D. (104)

A stem-fragment bearing the name D. Widson [sic] and the word Glasgow was found during excavations on San Juan Island, Washington state (Saastamo

1973: 88); this maker is otherwise known.

WOOD, William C. (and Sons) (105)

1857-62 21 McFarlane Street
1863-64 20 Washington Street
1865-69 83 Pitt Street
1870-75 Plantation Works, Lambhill Street

("and Sons" added from 1871)

(Hugh Divine and Co at 21 McFarlane Street 1855)

WYLIE, Alexander (and Co) (106)

1834-42 22 St Mungo's Lane
1843 87 Great Hamilton Street

("and Co" added 1835-38)

(John Watson 1827-30, McFarlane, Watson and Co 1831-32, James Tomilty 1849-50, Alexander Bain 1851, Patrick McAvoy 1852, Michael McAvoy 1856-60 at this address which changes from St Mungo Street to St Mungo Lane to South St Mungo Street back to St Mungo Street)

YOUNG, A. and G. (107)

1878 41 Eglington Street

YUILE, W. (108)

A stem fragment marked W. YUILE/GLASGOW was found during excavations at Fort Lennox, Quebec (Lemieux 1965) the maker is otherwise unknown.

APPENDIX VIII:
MUSEUM PIPE COLLECTION EXAMINED FOR BRISTOL MATERIAL+

APPENDIX VIII:

MUSEUM PIPE COLLECTIONS EXAMINED FOR BRISTOL MATERIAL+

CORNWALL

Passmore Edwards Public Library and Museum, Bodmin	1
*Public Library and Museum, Camborne	2
*The Cornish Museum, East Looe	3
*Helston Borough Museum, Helston	4
County Museum and Art Gallery, Truro	5

DEVON

Ashburton Museum, Ashburton	6
The North Devon Athenaeum, Barnstaple	7
St Anne's Chapel Museum, Barnstaple	8
Bideford Museum, Bideford	9
Brixham Museum, Brixham	10
Dartmouth Borough Museum, Dartmouth	11
Royal Albert Memorial Museum and Art Gallery, Exeter	12
Honiton and Allhallows Public Museum, Honiton	13
*Ilfracombe Museum, Ilfracombe	14
**City Museum and Art Gallery, Plymouth	15
*South Molton Museum, South Molton	16
Topsham Museum, Topsham	17
Torquay Natural History Society Museum, Torquay	18
The Elizabethan House, Totnes	19

DORSET

**Dorset County Museum, Dorchester	20
*Poole Museum, Poole	21
Abbey Ruins Museum, Shaftesbury	22
(**)Local History Museum, Shaftesbury	23
Priest's House Museum, Wimborne Minister	24

SOMERSET

Bath Roman Museum, Bath	25
*Admiral Blake Museum, Bridgwater	26
Frome Museum, Frome	27
J.S. Fry and Sons Museum, Keynsham	28

+The museums are listed here by their pre-1 April 1974 counties (see also p.592 n.49).

Shepton Mallet Museum, Shepton Mallet 29
Somerset County Museum, Taunton 30
Wells Museum, Wells 31
Museum and Art Gallery, Weston-super-Mare 32
Wookey Hole Museum, Wookey Hole 33
Wyndham Museum, Yeovil 34

WILTSHIRE

Devizes Museum, Devizes 35
Athelstan Museum, Malmesbury 36
**Salisbury and South Wiltshire Museum, Salisbury 37

GLOUCESTERSHIRE

Blaise Castle Folk Museum, Bristol 38
Bristol City Museum, Bristol 39
*Bristol University Speleological Society Museum, Bristol 40
W.D. and H.O. Wills Museum, Bristol 41
Cheltenham Art Gallery and Museum, Cheltenham(x) 42
The Corinium Museum, Cirencester 43
City Museum and Art Gallery, Gloucester(x) 44
Stroud Museum, Stroud 45
Tewkesbury Museum, Tewkesbury 46

WARWICKSHIRE

Birmingham City Museum and Art Gallery, Birmingham(x) 47
Herbert Art Gallery and Museum, Coventry(x) 48
Nuneaton Museum and Art Gallery, Nuneaton(x) 49
Shakespeare Centre, Stratford-upon-Avon 50
Warwick County Museum, Warwick 51

WORCESTERSHIRE

*Dudley Museum and Art Gallery, Dudley 52
Almonry Museum, Evesham 53
*Museum and Art Gallery, Kidderminster 54
*Worcestershire County Museum, Hartlebury Castle, nr Kidderminster 55
City Museum and Art Gallery, Worcester(x) 56

HEREFORDSHIRE

Hereford City Museum and Art Gallery(x) 57

BRECKNOCKSHIRE

*Brecknock Museum, Brecon 58

MONMOUTHSHIRE

Abergavenny and District Museum, Abergavenny(x)	59
Town Gate Museum, Chepstow	60
Nelson Museum, Monmouth	61

GLAMORGAN

The National Museum of Wales, Cardiff(x)	62
Welsh Folk Museum, St Fagans, nr Cardiff(x)	63
*Art Gallery and Museum, Merthyr Tydfil	64
*Glynn Vivian Art Gallery, Swansea	65
Royal Institution of South Wales, Swansea	66

CARMARTHENSHIRE

County Museum, Carmarthen	67

PEMBROKESHIRE

County Museum, Pembroke	68
Tenby Museum, Tenby	69

OUTLIERS

Rothsay Museum, Bournemouth, Hampshire	70
Red House Museum and Art Gallery, Christchurch, Hampshire	71
Bargate Guildhall Museum, Southampton, Hampshire	72
God's House Tower Museum, Southampton, Hampshire	73
Winchester City Museum, Winchester, Hampshire	74
The Westgate Museum, Winchester, Hampshire	75
Filkins and Broughton Poggs Museum, Filkins, Oxfordshire	76

OTHER COLLECTIONS

A.S. Brook Collection, River Dart Navigation Commission, Totnes, Devon	77
J. Parry Collection, Ross-on-Wye, Herefordshire	78
**Collections of material at Marlborough, Wiltshire, studied by D.R. Atkinson (1965c, rev ed 1969b, 1973)	79
Cherry Tree Inn, Bristol	80
George Inn, Norton St Philip, Somerset	81
Courage's Brewery, Bristol	82
Raglan Castle, Raglan, Monmouthshire (material in possession of the Department of the Environment - former Ministry of Public Building and Works - office in Cardiff(x)	83
Department of Medieval and Later Antiquities, British Museum, London(x)	84

Museums marked with an asterisk are those which either sent pipes themselves or drawings or verbal descriptions sufficient to identify the material without the writer having to visit these museums. Those marked with a double asterisk have collections of which adequate description has appeared in print, again obviating the need to visit these museums (in the case of the Local History Museum, Shaftesbury, marked with two asterisks bracketed, a description of the collection there appeared subsequent to the writer's visiting the museum). In the case of the Bath Roman Museum at Bath a description of the material there had appeared shortly before the museum was visited. The papers describing these collections are cited in 6: VII(a) (1).

Museums followed by a bracketed x were visited in the autumn of 1971; all the others were visited during the summer of 1969.

The writer is aware that Bristol is legally a county in its own right, but for practical reasons the city has been included in Gloucestershire in the above lists.

APPENDIX IX:
BRISTOL TOBACCO-PIPE MAKERS

APPENDIX IX: BRISTOL TOBACCO-PIPE MAKERS

Introduction

Some Elizabethan author is supposed to have maintained a man was illiterate unless he could spell his name 20 different ways. Judged by this standard some Bristol pipemakers made a brave attempt to be literate, occasionally to the intense frustration of this writer.

First prize for endeavour must go to Richard Nunney, whose surname occurs in nine variations including the one used here, two occurring on pipes and one known only from a pipe; but he is followed closely by John Macey I with eight variations, one of them known only from his pipes where it appears to be consistently used. Nunney, moreover, had the dubious and presumably involuntary honour of also appearing with a changed first name - to John. The Poyte family, four or five generations of whom were pipemakers in the C17 and C18, can also claim among them nine variations - including Boyte and Powell - and when the founder of the dynasty, Thomas Poyte I, took his freedom in 1656 he was described as "Thomas Poycke or Poyte", son of "John Poicke or Poite". The various Sinderlin and Sinderling pipemakers (not all appear to have been related to each other) also produced nine variations of their name, one maker Edward Sinderlin being recorded with six variants all told. William Kinton's surname occurs in five variations, as does that of John Holstead II - altogether, in fact, the name Holstead appears in six varieties.

The final decision on a preferred spelling has been difficult and in the last resort sometimes arbitrary. As much as possible, the decision was made on which spelling appeared most frequently in what appeared from internal or external evidence to be the most accurate sources and the variations are appended in brackets after the preferred reading. For obvious practical reasons members of the same family were given a consistently spelled surname, and this was applied even where there was evidence that the spelling had changed with time, for example the two Lewis families and the Okelys. With some sources their inaccuracy was obvious - the poll books being the prime example (cf 6: V) - but with others, contradictions were less easy to solve. Documentary evidence would suggest the Robert Tippet family used the spelling Tippett, but the double-t ending appears to be unknown on any of their products, the consistent spelling here on present evidence being Tippet except for the products of Jane or Joane Tippet, widow of Robert Tippet I, whose products have the spelling Tipet. (J(o)ane Tippet had the misfortune to have a sex-change in one document, becoming John). On the basis of it seeming improbable that a family producing pipes bearing their mould-imparted names for three-quarters of a century would have allowed their name to have been so persistently mis-spelled the writer opted for the spelling Tippet. Further, the sole pipe attributable at present to Robert Tippet II's younger brother William I also has the spelling Tippet. Having committed himself on these grounds to this spelling for the Robert and William Tippets the writer decided on the unscholarly grounds of ease of reference and cataloguing to opt for the same spelling for the two John Tippet pipe-makers even though their names appear in the documents with a double-t ending and they are at least not near relatives of the Robert and William Tippets (none of their products are known to this writer, though a pipe marked I/TIP/PET was recorded from the Robert Tippet family Whitson St kiln - see introductory discussion on Tippets in this Appendix).

The same problem arises with Edward and Thomas Reed. Edward Reed's surname is more commonly spelled Read in the documents, but the three pipe-bowls known with his name on them give the double-e spelling despite other design differences in the cartouche taking the name. The double-e spelling has therefore been used here, but as a result Edward's brother Thomas, whose only documentary reference gives the spelling Read for himself and his father, also has to be listed under the double-e spelling.

Where surnames have been spelled with sufficient difference to make confusion likely - Calloway and Kellaway-Kelloway, for example, Wickham and Bickham, Bull and Wolfe (!), Wall and Worll - a cross-reference has been made. Mistakes of first names occur much less frequently, but a few cause confusion or doubt, for example John Holstead I is thrice referred to as James Holstead and it is not absolutely certain that James Fox and John Fox are the same person.

In the entries, events are arranged chronologically; those in brackets are ones contributing no direct evidence as to whether the person involved was actually alive or not. Italicizing (underlining) is used to draw particular attention, for example to the change in a wife's name or to freedom being taken for a reason contradictory to the apprenticeship entry or otherwise taken dubiously; unfortunately, it has also had to be used when citing Latin entries from the Apprenticeship Rolls and for noting printed sources, but these are readily separable from the other points. In the family trees italicizing (underlining) occurs with surnames different from the main family involved and family members who were pipemakers have their names capitalized; in cases where the different surname is that of another pipemaker his surname (and first name) are also capitalized. In the poll-book entries a place of work other than Bristol is capitalized. Where there is more than one pipemaker with the same first name and surname they are differentiated by added Roman numerals after the name regardless of whether they are of the same family or not, and the sequence is determined by the date of their freedom: thus John Frederick Bryant III is the son of John Frederick Bryant I, John Frederick Bryant II (a cousin of JFB III) having taken his freedom three days before his cousin. The contractions, A, F, M, and D stand for apprenticed, free, married, and died respectively; fl is used to indicate the individual was alive and presumably working at the date noted (where an apprentice appears never to have finished his apprenticeship but is noted - e.g. in a transfer - subsequent to having started his apprenticeship the term "alive" is used with the latter date as he was presumably not active in business while still an apprentice). Isolated entries are separated from each other by a space; "continuous" entries (such as annual directory entries) are not so separated. Entries which do not fit into the mainstream of data, and remarks essentially editorial asides, are put at the end separated from the others by a larger space.

The family trees will be found following the entries. All pipe illustrations will be found after the family trees, and are arranged alphabetically under maker's name.

ABBOT - see also ABBOTT X

ABBOT, John (Abbott, Abbots) (1)

F 1651, fl 1681, poss. D by 1696

10 November 1651; free by express order of Mayor and Aldermen and a fine of £1.

September 1652: founder-member of Bristol Pipemakers' Guild.

27 February 1655/6: he and his wife Joan took John Holstead apprentice.

15 October 1660: he and wife Joan took Thomas Richards apprentice.

(11 March 1662/3: apprentice John Holstead free.)

(28 February 1676/7: apprentice James Abbott free.)

(3 March 1676/7: apprentice John Garratt free.)

24 August 1681: he and wife Joan took William Marmdrell apprentice.

A John Abbot with mother Joan and brother William noted in St Thomas in 1696 list of Bristol inhabitants (Ralph and Williams (eds) 1968: 207) could be the family of John Abbot pipemaker, in which case the latter must have died between 1681 and 1696.

ABBOTS, Richard (Abbott) (2)

F 1689/90, fl 1715

20 February 1689/90: free having married Mary daughter of Richard Nunney pipemaker.

11 January 1698/9: he and wife Maud took Henry Emblen apprentice.

1715 Polls - St James.

(Daughter Susannah married Robert Ducy pipemaker who became free 27 July 1727.)

ABBOTT, Edward (Abbot) (3)

fl 1641 Waterford, Ireland; fl 1652-54 Bristol

fl 1641 Waterford, Ireland, surviving Irish rebellion because his trade deemed necessary by the Irish who apparently had few or no pipemakers of their own.

September 1652: founder-member of Bristol Pipemakers' Guild. Guild charter claims all founding members were freemen or freemen's widows but no evidence that Edward Abbot was ever a freeman pipemaker (Nott and Ralph (eds) 1948: 117-8, 172, cf4).

fl 1653 and 1654 Bristol when made depositions regarding property of his in Waterford.

Possibly a Bristolian who had emigrated to Waterford following James I's advertising in 1619 for settlers for that city following its incorporation (Latimer 1900: 71), but if so probably later than 1619 as earliest reference to a pipemaker in Bristol only occurs that year.

ABBOTT, James (Abbotts, Abbett, Abbot, Abbots, Abott) (4)

F 1676/7, fl 1715, D by 1721/2

Apprenticeship record not found.

28 February 1676/7: free having been apprenticed to John Abbot.

2 January 1681/2: he and wife Anne took Samuel Sledge apprentice.

6 May 1689: he and wife Anne took Thomas Addison apprentice.

22 May 1690: noted as of St James, licence to marry Jane Russell of St. Peter; place of marriage not given (Hollis and Ralph (eds) 1952: 210).

14 October 1690: bondsman (parish not noted) in marriage licence for James Bull (prob. James Bull II), pipemaker, and Mary Evans of St Thomas; at St Thomas's or St Mary Redcliff's (Hollis and Ralph (eds) 1952: 214).

(9 April 1962: his apprentice Samuel Sledge free.)

29 November 1694: he and wife Jane took Henry Horred apprentice.

26 August 1696: bondsman (parish not noted) in marriage licence for Thomas Owen I, pipemaker, and Mary Bull of St Thomas; (place of marriage not given) (Hollis and Ralph (eds) 1952: 273).

1696: noted with wife Jane and children Susannah and Rachel Rendall (sic) in St Peter in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 156).

17 June 1699: he and wife Jane took Richard Carter I apprentice.

(30 October 1700: his apprentice Thomas Addison free.)

(4 June 1706: his apprentice Richard Carter I free.)

17 June 1706: he and wife Katherine took Philip Knell apprentice.

12 May 1708: he and wife Katherine took James Stephens I apprentice.)

(12 June 1713: his apprentice Richard Sneed free.)

(17 August 1713: his apprentice Isaac Lloyd, initially with Edmond Sinderling, free.)

(28 October 1713: his apprentice Philip Knell free.)

1715 Polls - St Peter.

25 May 1715: he and wife Katherine took Matthew Gethling apprentice.

(13 February 1715/6: his apprentice James Stephens I free.)

Dead by 13 February 1721/2 when apprentice John Barton free.

(16 June 1722: apprentice Matthew Gethling free, at which time Abbot again noted dead.)

(17 February 1723/4: widow Katherine (see ABBOTT, Katherine) took Abraham Packer apprentice.)

Jane Randall, Abbott's second wife, may have been a widow to judge by the two children Susannah and Rachel Randall noted with her and Abbott in 1696 (above). If so, Jane may have been the widow of Edward Randall I, pipemaker, noted as a widow in 1698 when she took Edward Watts apprentice. When Watts becomes free 1700, however, he is referred to as having been the apprentice of Jane Randall a "freeman's widow" which while true enough vis-a-vis his apprenticeship is not really the entry one would have expected if Jane Randall had married Abbott, particularly as Watts would have had to come with her to work with her and Abbott if she had indeed married Abbott. (Jane Randall wife and widow of Edward Randall I married Randall about February 1681/2 (q.v. Edward Randall I); her maiden name was Bennett.)

The references to Abbott being bondsman October 1690 to the marriage licence for Mary Evans and James Bull II to be married at either St Thomas's or Redcliff, and to his being bondsman in August 1696 to the marriage licence for Mary Bull and Thomas Owen I to marry at an unstated church, make it tempting to suppose Mary Bull was Mary Evans remarrying and suggests that perhaps she was a relative of Abbott. However, this seems unlikely for some rather complicated reasons. Mary Evans seems certainly to have married Bull about October 1690 because in December 1690 James and Mary Bull took an apprentice; however, James Bull obtained December 1692 a licence to marry a Mary Hassell at St Thomas's, and as it is unlikely he could have remarried in a church had his marriage to Mary Evans ended in divorce, presumably Mary Evans died. That Bull married Mary Hassell seems indicated by his being a bondsman in a marriage licence of 1694/5 involving a Sarah Hassell who must be a relative of Mary (the Deposition Books give Bull's name as Wolfe, but the editors are surely right in identifying him as Bull (Hollis and Ralph (eds) 1952: 260)). There are no references to Bull after this date; if he died soon after, Mary Evans-Bull (assuming she were alive but divorced) could possibly have remarried in church as the 1696 licence indicates. There is still, however, the problem of Bull remarrying in church after a postulated divorce. It therefore seems more likely Mary Evans and Mary Bull were not the same person (they could, of course, have been in-laws and either or both could have had a blood or marital relationship to Abbott).

Signs both marriage bonds in 1690 with a mark, but signs his name in 1696.

ABBOT, Katherine (5)

M bet. 1699 and 1706, widowed bet. 1715 and 1721/2, fl 1723/4

Third and surviving wife of James Abbott (q.v.), married between 17 June 1699 when James and Jane Abbott took Richard Carter apprentice and 17 June 1706 when James and Katherine Abbott took Philip Knell apprentice.

Widowed between 25 May 1715 when she and James Abbott took Mathew Gething apprentice and 13 February 1721/2 when apprentice John Barton becomes free and it is noted James Abbott was deceased.

17 February 1724/4: took Abraham Packer apprentice.

ABLIN, William (6)

A 1669

6 May 1669; son of William Ablin of Bristol, gardener, apprenticed to William and Mary Cicell (entry incomplete).

ADAMS, John (7)

A 1792, F 1812

2 April 1792: son of William Adams late of Bristol, brushmaker decd, apprenticed to John and Mary Carey for 7 yrs; master to find apparel and washing, 40s paid with apprentice the gift of Ald. Kitchen decd.

1 October 1812: free because the son of a freeman brushmaker decd.

ADDISON, Thomas (8)

A 1689, F 1700, D by 1727

6 May 1689: son of Thomas Addison late of St Peter parish, Bristol, spanish leather-dresser (decd?), with the consent of Thomas Harris and Thomas Haines Guardians of the Church of St Peter and Overseers of the Poor of the parish, apprenticed to James and Anne Abbott for 8 yrs; apprentice to receive 5s for the last yr.

30 October 1700: free having been apprenticed to James Abbott.

Dead by 27 July 1727 when son William Addison (q.v.) free.

ADDISON, William (9)

F 1727, fl 1754

27 July 1727: free because the son of Thomas Addison of Bristol, pipemaker decd.

1739 Polls - St Michael; voted for Southwell.

(12 February 1750/1: son William apprenticed to Roger Rice, brassfounder, ans wife Susannah for 7 yrs.)

1754 Polls - St Michael; voted for Philipps and Beckford.

(24 February 1756: son William became a freeman brazier.)

ALBRIGHT, John (10)

A 1707, F 1727, fl 1739

25 October 1707: son of Benjamin Albright late of Henbury, Gloucestershire, yeoman decd, apprenticed to Thomas and Anne Harvey for 7 yrs.

26 July 1727: free having been apprenticed to Thomas Harvey.

1734 Polls - St James; voted for Coster.

1739 Polls - St James; voted for Southwell.

ALLEN, Isaac (11)

fl 1832-48

1832 Pipe Lane, Temple St (FIG 204; Matthews's Dir.) - appears in general entries only in place of the J. Allen (q.v.) listed in the trades section.

1842 ditto (Pigot's Dir.)

1848 Commercial Rd (Hunt's Bristol and Welch Towns Dir.)

(A Thomas Allen born in Bristol (aet 33 in 1851, so B 1817 or 1818) noted working with wife in Bath in 1851 census - probably a journeyman (Brown and Brown 1974: 28).

A William Allen, place of birth given only as "not Somerset", (aet 30 in 1841, so B 1820 or 1821) noted working in Bath in 1851 census - probably a journeyman (Brown and Brown loc. cit.).)

ALLEN, J. (12)

fl 1832-49

1832 Pipe Lane, Temple St (FIG 204 ; Matthews's Dir.) - appears in the trades section, Isaac Allen (q.v.) being listed in his place in the teneral entries.

1833-35 no mention.

1836-49 Pipe Lane, Temple St (Matthews's Dir.).

1837 Pipe Lane, Temple (Robson's Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

Succeeded by C. and C.S. Brandon (q.v.).

(A Thomas Allen born in Bristol (aet 33 in 1851, so B 1817 or 1818) noted working with wife in Bath in 1851 census - probably a journeyman (Brown and Brown 1974: 28).

A William Allen, place of birth given only as "not Somerset", (aet 30 in 1841, so B 1820 or 1821) noted working in Bath in 1851 census - probably a journeyman (Brown and Brown loc. cit.).)

ANDREWS, John (13)

F 1780, fl Bristol 1781, fl London 1784

9 September 1780: free having married Sarah daughter of James Mathews pipemaker.

1781 Polls - St Michael; voted for Cruger.

1784 Polls - East Smithfield, LONDON; voted for Cruger.

ANDREWS, Richard (14)

A 1713/4

26 January 1713/4: son of Richard Andrews of Bristol, feltmaker, apprenticed to John and Anne Pearce for 7 yrs; friends to find apparel.

APPLEFORD, Thomas I (15)

F 1804, fl 1813, F by 1830

8 September 1804: free because son of freeman labourer Thomas Appleford of Bristol decd.

1812 Polls - Mary Bush Lane, Castle Precincts; voted for Romilly and Hunt.

Dead by 27 July 1830 when son Thomas Appleford II (q.v.) free.

Brother-in-law of John Ballard (q.v.).

APPLEFORD, Thomas II (16)

F 1830, fl 1832

27 July 1830: free because son of Thomas Appleford I of Bristol, pipemaker decd.

1830 Polls - Gt Ann St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Baillie and Vyvyan.

ARTHUR, John (Arthurs) (17)

A 1700, F 1707, fl 1715, D by 1723

26 August 1700: son of Thomas Arthur of Bristol, tobacconist, apprenticed to Thomas and Joan Watts for 7 yrs; friends to find apparel.

29 December 1707: free having been apprenticed to Thomas Watts.

1715 Polls - St James.

Referred to as dead 24 June 1723 when widow Rebecca Arthur (q.v.) took James Lee apprentice.

(Rebecca took apprentices 1731/2, 1733, and 1740; when John Poyte IV free 1739 referred to as having been apprenticed to "Rebecca Arthurs [sic] widow and relict of John Arthurs".)

Father Thomas Arthur does not appear in Tyack's list of Bristol freemen tobacconists up to 1700 (Tyack 1935b).

ARTHUR, Rebecca (Arthurs) (18)

Widowed by 1723, fl 1740

(Widow of John Arthur (q.v.) but date of marriage unknown; John Arthur F 1707 and fl 1715.)

Widowed by 24 June 1723 when took James Lee apprentice (Lee turned over to Charles Buckner 15 August 1726).

22 March 1732/2: took John Poyte IV apprentice.

12 November 1733: took Thomas Carter apprentice.

(9 October 1739: John Poyte free, being described as having been apprenticed to "Rebecca Arthurs [sic] widow and relict of John Arthurs".)

2 April 1740: took Samuel Richards I apprentice.

Lack of apprentices taken by John Arthur while alive suggests he was a journeyman; his widow would then have had to take apprentices because she now had to find her own living. If this is the case, John Arthur probably died only shortly before his widow took her first apprentice in June 1723.

ARTUS, Henry (19)

A 1674/5, F 1681/2

23 February 1674/5: son of William Artus of Bristol, porter, apprenticed to Llewellin and Mary Evans for 7 yrs.

25 February 1681/2: free having been apprenticed to Llewellin Evans.

ATTON, George (20)

A 1677

12 June 1677: son of John Atton of "co. London", sailor, apprenticed to Roger and Susannah Williams for 7 yrs.

AVERY, George - see EBBERY, George X

AYLIFF, James (21)

F 1771

7 January 1771: free having married Jane daughter of James Scudamore of Bristol, cordwainer.

BABB, Edward (22)

F 1767

23 April 1767: free having married Ann daughter of John Fryer of Bristol, pipemaker.

Brother-in-law of John Bateman I (q.v.).

BAILY, Anthony I (Bayly, Bayley, Bailey) (23)

A 1713, F 1721, fl 1754

17 November 1713: son of John Baily of Bristol, woolcomber, apprenticed to John I and Eleanor Macey for 7 yrs; friends to find apparel, 40s paid with apprentice.

7 November 1721: free having been apprenticed to John Macey.

1722 Polls - Temple; voted for Earl and Elton.

11 May 1722: he and wife Hester took John Harris II apprentice.

26 August 1728: he and wife Hester took Thomas Wilmot apprentice.

(12 May 1729: apprentice John Harris free.)

(5 January 1730/1: apprentice Thomas Wilmot turned over to William and Mary Nicholas.)

20 November 1732: he and wife Hester took Joseph Challender I apprentice.

1734 Polls - Temple; voted for Coster.

25 October 1736: apprentice Joseph Challender I turned over to William and Mary Nicholas "by the consent of all parties", which phrase suggests Baily was alive at this time.

1739 Polls - Temple; voted for Southwell.

12 February 1740/1: he and wife Hester took John Pidney apprentice.

(28 April 1741: Joseph Challender I free having been apprenticed first to Anthony Baily I and then turned over to William Nicholas.)

14 December 1743: he and wife Hester took son Anthony Baily II apprentice.

1754 Polls - Temple.

BAILY, Anthony II (24)

A 1743

14 December 1743: son of Anthony Baily I of Bristol, pipemaker, apprenticed to father and wife Hester for 7 yrs; £10 paid with apprentice the gift of Edward Colston Esq. decd.

BAKER, Frederick (25)

A 1751

7 May 1751: son of James Baker late of Clifton parish, Gloucestershire, stone-cutter, apprenticed to James II and Rebecca Stephens for 7 yrs; 40s paid with apprentice the gift of Clifton parish.

BALLARD, John (26)

F 1808, fl 1841

3 March 1808: free having married Elizabeth daughter of Thomas Appleford of Bristol, labourer decd.

1812 Polls - Lawrence Hill, St Philip and Jacob Out-parish; voted for Romilly and Hunt.

1818 Polls - ST GEORGE PARISH, GLOUCESTERSHIRE [area east of Lawrence Hill]; voted for Davis and Baillie.

1820 Polls - Lewin's Mead, St Michael; voted for Davis and Bright [this address indicates Ballard lived at the extreme SW end of Lewin's Mead - modern Narrow Lewin's Mead - as the rest of Lewin's Mead (NE of Lewin's Meed Meeting) is in St James].

1830 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Baillie and Vyvyan.

1835 Polls - ditto; voted for Vyvyan and Miles.

1841 Polls - New St, St Philip and Jacob Out-parish; voted for Miles and Fripp.

BARKLEY, John (27)

A1716, F 1727

21 September 1716;: son of Thomas Barkley of Chipping Sodbury, Gloucestershire, yeoman, apprenticed to Joel and Margaret Williams for 7 yrs; friends to find apparel.

29 February 1719/20: turned over for remainder of term to John and Mary Purnell with the consent of himself and his friends, Williams "being failed and gone off".

31 July 1727: free having been apprenticed first to Joel Williams and later to John Purnell.

BARLEY, Joseph (28)

A 1654

23 December 1654: son of George Barley late of Thornbury, Gloucestershire, translator decd, apprenticed to Thomas and Anne Smith for 7 yrs and 1 covenant yr for which he is to have 20s.

BARNSLIE, Peter (29)

A 1641

26 April 1641: son of John Barnslie of Bristol, whittawer, apprenticed to John and Jane Wall for 8 yrs.

BARTLETT, John (30)

A 1755

24 December 1755: son of John Bartlett late of Sherborne, Dorset, mason decd, apprenticed to George and Anna Viner for 7 yrs.

BARTON, John (31)

F 1721/2, fl 1722

Apprenticeship record not found.

13 February 1731/2: free having been apprenticed to James Abbot[t] decd.

1722 Polls - St Peter;voted for Earl and Elton.

BASTON, Peter (32)

fl 1824-35

1824-31 New St (Matthews's Dir.).
1832-35 17 New St (ditto).

BATEMAN, John I (33)

Apparently A 1734/5, F 1747, D by 1774

22 February 1734/5: presumably the John Bateman son of Tobias Bateman late of Bristol, mason decd, apprenticed to William and Susannah Nayler for 7 yrs; friends to find apparel, 40s paid with apprentice the gift of Ald. Kitchen decd.

26 June 1747: free having married Elizabeth daughter of John Fryer pipemaker.

1754 Polls - St James; voted for Nugent.

Dead by 3 October 1774 when son John Bateman II pipemaker free.

Brother-in-law of Edward Babb (q.v.).

BATEMAN, John II (34)

F 1774

3 October 1774: free because the son of John Bateman I of Bristol, pipemaker decd.

1774 Polls - St James; voted for Cruger and Burke.

BATES, Robert (35)

A 1714

18 April 1714: son of Thomas Bates late of Bristol, cordwainer decd, apprenticed to Robert I and Martha Williams for 7 yrs.

BATH, - (36)

fl second half of C19

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953. No first name given; address listed as Harford St, St James.

BATTIN, Isaac (Batten) (37)

A 1740/1, F 1748, fl 1754

9 January 1740/1: son of John Battin of Britton parish, Gloucestershire, [occupation not stated] apprenticed to William and Mary Foord for 7 yrs; friends to find apparel.

17 October 1748: free having been apprenticed first to William Foord and then turned over to Devereux Jones II decd.

23 January 1748/9: he and wife took John Peters apprentice.

1754 Polls - St James.

(19 February 1756: apprentice John Peters free.)

BATTLE, Edward (38)

A 1651, F 1660, fl 1669

4 April 1651: son of Robert Battle of Bristol, mariner decd, apprenticed to Philip I and Sarah Edwards for 8 yrs.

20 August 1660: free having been apprenticed to Philip Edwards I.

1 July 1669: he and wife Abigal took John Webb apprentice.

(19 October 1669: son-in-law Robert Browning (q.v.) free by marriage to his daughter Sarah.)

BAYLY, Anthony - see BAILY, Anthony I X

BEALE, John (39)

A 1660, F 1680/1, poss. fl 1696

20 August 1660: son of Edward Beale of Gloucester, boatman, apprenticed to Robert I and Joane Tippet for 7 yrs.

5 February 1680/1: free having been apprenticed to Robert Tippet.

1696: Possibly the John Beale "servant" working with William Tippet I in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 55) [William Tippet I (q.v.) was a younger son of Robert Tippet I and a pipemaker; the same 1696 list notes Robert Tippet II (q.v.) an older son of Robert I of having "servants" when one listed is known to be an apprentice, and journeymen - Beale could have been one - may have been similarly listed].

BEATON, John (40)

A 1700, F 1707

29 April 1700: son of Richard Beaton of Bristol, cordwainer, apprenticed to Robert I and Sarah Browning for 7 yrs; father to deliver one suit of apparel at end of 2½ yrs and apprentice to have at end of apprenticeship three suits - viz. one of new broadcloth plus the one delivered by his father plus the suit he had brought with him when first apprenticed.

12 May 1707: free having been apprenticed to Robert Browning I.

BEEKES, Jacob (41)

A 1681, released 1684

20 April 1681: son of Robert Beekes late of Bristol, cordwainer decd, apprenticed to Llewellin and Elizabeth Evans for 7 yrs.

12 May 1684: struck off by consent of all parties and his indentures cancelled.

BERRY, George (42)

A 1740, F 1747, fl 1774

31 March 1740: son of William Berry of St Philip and Jacob parish, Gloucestershire [i.e., the Bristol out-parish of St Philip and Jacob], weaver, apprenticed to George and Elizabeth Ebbery for 7 yrs; paid with apprentice £3 charity money.

27 June 1747: free having been apprenticed to George Ebbery.

1754 Polls - St. Michael; voted for Philipps and Beckford.

1774 Polls - ditto; voted for Brickdale and Gruger.

BERRYMAN, Richard (43)

fl 1619-52

26 November 1619: he and wife Anne took John Wall apprentice.

20 January 1639/40: he and wife Anne took John [sic - probably James] Fox apprentice.

24 April 1640: he and wife Anne took Thomas Quoyse apprentice.

September 1652: presumably the Berryman with a blank for first name listed as founder-nember of the Bristol Pipemakers' Guild. Guild charter claims all founding members freemen or widows of freemen, but no evidence that Richard Berryman was ever a freeman pipemaker.

First recorded Bristol pipemaker.

BEVAN, Llewellin Williams X

A 1654

9 October 1654: son of William Bevan of the town of "Brecknock", weaver, apprenticed to James and Jane Fox for 7 yrs [probably the Llewellin Evans F 31 May 1661 having been apprenticed to James Fox, but if so took his freedom before his 7 yrs were up - see under EVANS, Llewellin].

BICKMAN, Isaac (Bickham, Buckham) (44)

F 1774, fl 1774 Bristol, fl 1781-1830 London

4 October 1774: free because the son of Thomas Bickman of Bristol, pipemaker.

1774 Polls - St James; voted for Cruger and Burke.

1781 Polls - Hanging Sword Alley, Fleet St, St Bride, LONDON; voted for Cruger.

1784 Polls - Queen's Ct, St Andrew, Holborn, LONDON; voted for Brickdale and Daubeny.

1812 Polls - Half Moon Alley, Bishopsgate Within, LONDON; voted for Romilly.

1830 Polls - ditto; voted for Baillie.

BICKHAM, John - see WICKHAM, John X

BICKMAN, Thomas (Bickham, Brickham) (45)

F 1754, fl 1754 Bristol, fl 1774 Bath, fl 1781-84 Lambeth

25 March 1754: free because the son of Joseph Bickman of Bristol, mariner decd.

1754 Polls - Temple; voted for Philipps and Beckford.

(21 May 1768: son Joseph apprenticed to Harry Dymock farrier and wife Hannah with £10 from the Grateful Society in Bristol.)

(4 October 1774: son Isaac (q.v.) free.)

1774 Polls - BATH, SOMERSET; voted for Brickdale.

1781 Polls - LAMBETH, SURREY; voted for Cruger.

1784 Polls - ditto; voted for Brickdale and Daubeny.

BIDDELL, William (46)

prob. fl 1652, fl 1663

September 1652: probably the William Bitt... (remainder of surname illegible) listed as a founder-member of Bristol Pipemakers' Guild. Guild's charter claims all founding members were freemen or widows of freemen but no trace of a Biddell or similar name a freeman pipemaker.

10 November 1663; William Biddell of St James bondsman in marriage licence for Philip Hore, sailor, and Elizabeth Biddell, both of St James; at St James's (Hollis and Ralph (eds) 1952: 26).

Biddell witnesses marriage bond with a mark; Elizabeth Biddell presumably a relative.

BILLINGE, Daniel (47)

A 1631

7 April 1631: son of Richard Billinge late of Bristol, tailor decd, apprenticed to Edward and Elizabeth Lewis for 7 yrs and 1 yr without payment.

BIRCHINHED, Thomas (48)

A 1641

14 December 1641: son of Henry Birchinhed of Bristol, weaver, apprenticed to William and Edith Carter for 7 yrs.

BISSE, James (49)

A 1739/40

1 February 1739/40: son of Gilbert Bisse of Bristol, wiredrawer, to John and Hester Wickham for 7 yrs; friends to find apparel and washing.

BISSIX, William (50)

fl 1820

1820 Redcliff Backs - residence 6 St Vincent's Pl, Hillsbridge (Matthews's Dir.).

BITT..., William X

September 1652: listed as a founder-member of the Bristol Pipemakers' Guild; probably the William Biddell noted elsewhere in 1663 (see BIDDELL, William).

BLACKMORE, R.W.; becomes BLACKMORE, HOLLOWAY AND CO then HOLLOWAY AND CO (q.v.) (51)

fl 1900-02, then becomes Holloway and Co

1900 14 Lamb St (as R.W. Blackmore) (Wright's Dir.).
1901-02 ditto (as Blackmore, Holloway and Co) (ditto).

Successor at this address of T.J. Corcoran (q.v.); becomes Holloway and Co (q.v.) 1903. For earlier occupants of these premises going back 90 years see 6: VI. R.W. Blackmore's residence 12 York St, Lower Easton.

BLADEN, Abraham (52)

A 1689

14 September 1689: son of John Bladen I of Bristol, pipemaker, apprenticed to father and his wife Katherine for 7 yrs.

BLADEN, James (53)

A 1683

13 April 1683: son of John Bladen of Bristol, pipemaker, apprenticed to father and his wife Katherine for 7 yrs.

BLADEN, John I (Blagen) (54)

A 1640/1, F 1657, fl 1689

18 March 1640/1: son of James Blagon [sic] of Bristol, smith, apprenticed to Edward and Elizabeth Lewis for 9 yrs.

6 April 1657: free having been apprenticed to Edward Lewis.

13 April 1683: he and wife Katherine took son James Bladen II (q.v.) apprentice.

(14 December 1685: son John Bladen II free by patrimony.)

14 September 1689: he and wife Katherine took son Abraham Bladen (q.v.) apprentice.

BLADEN, John II (55)

A 1685

14 December 1685: free because the son of John Bladen I of Bristol, pipemaker.

BOND, James (56)

A 1734

3 October 1734: son of James Bond of St Philip and Jacob parish, Gloucestershire [i.e. the Bristol out-parish of St Philip and Jacob], dyer, apprenticed to George and Elizabeth Ebbery for 7 yrs.

BONNER, John I (57)

A 1704, F 1712

22 July 1704: son of Thomas Bonner of Weston parish, Gloucestershire, farmer, apprenticed to Susannah widow of John Lewis for 7 yrs; to be given a new suit of clothes at the end of the term or 40s in lieu.

9 April 1712: free having been apprentice of Susannah widow of John Lewis.

(27 March 1754: son John Bonner II, a pipemaker (q.v.), became free.)

(25 June 1766: either his son-in-law or his son John Bonner II's son-in-law Eli Pearce became free having married either his daughter or his grand-daughter Elizabeth.)

BONNER, John II (58)

F 1754, fl 1784

27 March 1754: free because son of John Bonner I of Bristol pipemaker.

1754 Polls - St Michael.

(25 June 1766: either his son-in-law or his father John Bonner I's son-in-law Eli Pearce (q.v.) became free having married either his daughter or his sister Elizabeth.)

1774 Polls - St James; voted for Brickdale and Cruger.

1781 Polls - ditto; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

BISHER, Charles (59)

A 1763, F 1774, fl 1781

14 March 1763: son of Leonard Bosher of St Philip and Jacob Out-parish, Gloucestershire, tailor, apprenticed to Joseph I and Martha Edwards for 7 yrs; £10 paid with apprentice the gift of Edward Colston Esq., decd.

5 October 1774: free having been apprenticed to Joseph Edwards I.

1774 Polls - Castle Precincts; voted for Cruger and Burke.

1781 Polls - ditto; voted for Cruger.

BOSLY, William (60)

A 1653

14 November 1653: son of Richard Bosly of Bristol, seaman, to Thomas Deane and wife [no name given] for 7 yrs and 1 covenant yr; master to pay 4s6d for his freedom and to provide double apparel and 10s for the covenant yr.

BOURN(E), Richard (61)

A 1730, F 1739, fl 1774

4 November 1730: son of Nicholas Bourne of Bristol, porter, to James and Mary Jenkins for 7 yrs; friends to find apparel, 40s paid with apprentice the gift of Ald. Kitchen decd.

24 October 1739: free having been apprenticed to James Jenkins.

1739 Polls - St Michael; voted for Southwell.

1754 Polls - St Stephen; voted for Nugent.

(18 February 1756: his apprentice William James I free.)

1774 Polls - St James; voted for Cruger and Burke.

BOWREY, Stephen (62)

A 1673, released 1674

4 September 1673: son of Stephen Bowrey of Henbury, Gloucestershire, apprenticed to Francis I and Alice Russell for 8 yrs.

4 November 1673: identical entry but apprenticeship for 7 yrs.

28 March 1674: note of this date added to the 4 September 1673 apprenticeship entry indicating Bowrey was discharged by consent of all and his indentures cancelled.

Willis and Merson (eds) 1968: xiv note that at Southampton there is evidence, including entries twice on nearby pages, that the register of apprentices there was made up from time to time from information on scraps of paper or in a rough notebook. That the Bristol apprentice rolls were made up similarly is suggested by entries where a blank is left for a name - for example for the name of Edward Randall I's wife when the Randalls took Joseph Butt apprentice and for Thomas Deane's wife when the Deanes took Richard Cable apprentice, or for Jane Wall's deceased husband's name when she took Henry James apprentice. Even if a blank for a wife's name were really caused by the master being unmarried (for which there is occasional evidence; Deane was probably one such in fact) the leaving of a space indicates the compiler did not have the master at hand to ask, showing the rolls were not written up at the apprenticeship ceremony. The omission of some pieces of information, e.g. when Holliday Holborrow is apprenticed to Richard Hunt the entry lacks Hollborrow's father's place of work and occupation and also Hunt's wife's name, also suggests miscopying from slips of paper or a hasty noting of information intended for later entry in the rolls. The apprenticeship entry of Thomas Harvey, noting he was apprenticed to "tobaccopipemaker" and wife Susanne, again indicates the master (actually John Lewis I) was not present when the writing up of the book was done - in this case either the name was omitted inadvertently or it was illegible on the rough entry. In the case of Bowrey the difference in the month could possibly have been a misreading of the original or the scribe could have unwittingly written the month he was making up the rolls instead of the month in the rough entry; the change of the apprenticeship period from 8 to 7 yrs could have been a careless slip caused by assuming the term was for what was by now becoming a standard apprenticeship period of 7 yrs and not reading the original note carefully.

BOYTE, John - see POYTE, John I and POYTE, John II X

BRANDON, C. and C.S. (also BRANDON, Charles) (63)

fl 1850-53

1850-51 Pipe Lane, Temple (FIG 204 ; Matthews's Dir.).
1852 Pipe Lane, Temple Back (Slater's Dir.).
1853 Pipe Lane, Temple (Scammell's Bristol General Dir.) - referred to here as Charles Brandon.

Successor to J. Allen (q.v.).

BREWER, Richard (64)

A 1700/1, F 1713, fl 1734, D by 1744?

4 January 1700/1: son of John Brewer of Bristol, gingerbread baker, to Isaac and Sarah Evans for 7 yrs.

10 August 1713: free having been apprenticed to Isaac Evans.

1715 Polls - St James.

1722 Polls - ditto; voted for Earl and Elton.

1734 Polls - ditto; voted for Coster.

Possibly dead by 13 August 1744 when son William apprenticed John Marsh, corkcutter, and father referred to as "late of Bristol" though not actually as "deceased".

BRISTOL TOBACCO PIPE MANUFACTURERS (65)

fl 1905-11

1905-11 Tower St, Temple (Wright's Dir.).

Succeeds "Corcoran and Co (A.J. Veale)" (see VEALE, A.J.); 1905 entry gives name as British [sic] Tobacco Pipe Manufacturers.

BRITISH TOBACCO PIPE MANUFACTURERS - see BRISTOL TOBACCO PIPE MANUFACTURERS X

BROWNING, Robert I (66)

F 1669, fl 1700, D by 1706

19 October 1669: free having married Sarah daughter of Edward Battle of Bristol, pipemaker.

29 April 1700: he and wife Sarah took John Beaton apprentice.

Dead by 3 December 1706 because wife Sarah took Henry Hives I apprentice then and referred to as widow.

(12 May 1707: apprentice John Beaton free).

BROWNING, Robert II (67)

A 1694, alive 1696

17 September 1694: son of Richard Browning of Compton Dando, Somerset, weaver, apprenticed to John and Mary Sinderling for 7 yrs.

1696: listed with Sinderling in Temple in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 249).

BROWNING, Sarah (68)

M by 1669, widowed bet. 1700 and 1706, D by 1715/6?

Nee Sarah Battle daughter of Edward Battle pipemaker (q.v.), widow of Robert Browning I (q.v.), married by 19 October 1669 when Browning took his freedom by virtue of having married daughter of a Bristol freeman.

Widowed between 29 April 1700 when she and husband took John Beaton apprentice and 3 December 1706 when she took Henry Hives I apprentice.

At an unknown date subsequent to 3 December 1706 Henry Hives I was turned over to Thomas Watts, for when Hives takes his freedom 28 January 1715/6 it is noted he was apprenticed first to Sarah Browning and then to Thomas Watts; possibly Sarah Browning had died.

BRUIN, Thomas (69)

A 1670, dismissed 1675

24 October 1670: son of Thomas Bruin of Bristol, wiredrawer, apprenticed to Robert and Margaret Sheppard for 7 yrs.

16 October 1675: note of this date to the above entry (which has been stroked out) that Bruin, having been absent for about a year and a half and having departed secretly from his master and mistress without their permission, is discharged from his apparenticeship, has his indenture cancelled, and his name crossed off the Tolzey book; his master being at liberty to take another apprentice.

BRYANT, - (70)

fl second half of C19

Occurs in list of makers remembered by or whose names were familiar to Thomas George IV (1872-1968) said to date to 1878 or 1880 and compiled September 1952 but not in similar, undated, list compiled 6 January 1953. No first name given; address listed as Bread St, St Phillips [now Old Bread St].

BRYANT, Isaac (71)

F 1777, fl 1784

10 September 1777: free because the son of Samuel Bryant I of Bristol, pipemaker.

1781 Polls - St Michael; voted for Cruger.

1784 Polls - ditto; voted for Cruger.

Brother, prob. elder brother, of John Frederick Bryant II (q.v.).

BRYANT, John (O'Bryant, O'Bryan, Bryan) (72)

A 1709, F 1716, fl 1741/2, D by 1749

24 August 1709: son of Henry Bryant of Barton Regis, Gloucestershire, gardener, apprenticed to William I and Mary Tippet for 7 yrs.

3 October 1716: free having been apprenticed to William Tippet I.

19 March 1721/2: he and wife Ruth took William Lee apprentice.

1722 Polls - St James; voted for Earl and Elton.

(24 May 1729: apprentice William Lee free.)

3 April 1730: he and wife Ruth took Robert Powell II apprentice.

16 August 1732: he and wife Ruth took John Collard apprentice.

1734 Polls - St Michael; voted for Scrope and Elton.

(26 May 1737: apprentice Robert Powell II free.)

(4 October 1739: apprentice John Collard free.)

1739 Polls - St Michael; voted for Combe.

7 January 1741/2: he and wife Ruth took John Lee apprentice.

(23 June 1747: son John Frederick Bryant I free.)

Dead by 13 November 1749 when apprentice John Lee free.

(24 February 1756: William Smith free, described as having been first apprenticed to John Bryant decd. and later to George Viner; Smith's apprenticeship record not found.)

BRYANT, John Frederick I (73)

F 1747, fl 1753-60 London, fl Bristol 1760, D there ca.1777

23 June 1747: free because son of John Bryant of Bristol, pipemaker.

Had moved to London by 1753 and become a journeyman house-painter, not liking pipemaking, marrying a serving-maid there who was a native of Sunbury in Middlesex; eldest son John Frederick Bryant III (q.v.) born in Market St, St James, Westminster, 22 November 1753 (Bryant 1787: i, iii).

1754 Polls - LONDON; voted for Nugent.

Returned to Bristol "about the spring of the year 1760, when, in consequence of proposals made him by a relation at Bristol, he removed there with his family, having then four children" (Bryant, op. cit. iii).

In the early 1760s the death of the above-mentioned relative [never named; cannot be a Bryant] left John Frederick I "with a good business, and in tolerable circumstances, though with a large family" (ibid. vii).

Soon after the above, "the confusion occasioned by the American stamp-act [1765-66] soon after commencing, put a great stop to the trade to that country, and begun [sic] the ruin of his affairs" (loc. cit.).

About this time son John Frederick III began to learn the trade and as business continued to decline John Frederick I had to let go his journeypeople - at one time 10 in number - and work with the assistance of his family, though only 4 of his 9 children were old enough to be of any help. About this time he was also trumpeter at the city assizes which paid him a trifling salary and later the corporation gave him the position of exchange-keeper at a wage of £10 a year (in the early 1760s he was a violinist good enough to be acquainted with most of the Bristol and Bath musicians and to sometimes play at the Assembly Room (ibid. viii, vii).

ca.1771-72: wife died, apparently in childbirth (ibid. xiii).

1774 Polls - St James; voted for Brickdale and Cruger.

1775 61 Lewin's Mead - listed as John Bryant (Sketchley's Dir.)

ca.1777: died, a daughter (prob. Mary Bryant - q.v.) and son (not John Frederick III - prob. Samuel Bryant II) looking after the family business and the youngest children adequately cared for at public school (Bryant op. cit. xix).

Dead by 7 September 1780 when son John Frederick Bryant III free.

BRYANT, John Frederick II (74)

F 1780, fl 1784 London

4 September 1780: free because son of Samuel Bryant I of Bristol, pipemaker.

1784 Polls - he and cousin John Frederick Bryant III (q.v.) both listed in LONDON: one at High Holborn, St Giles, the other at Barnaby St, St Giles, but no means of telling which is which; first voted for Cruger and Peach, second for Cruger.

(Either his son or a son of John Frederick Bryant III the Devereaux Jones Bryant free 14 January 1797 in Bristol as a scrivener; the father referred to as deceased at this time.

Brother, prob. younger brother, of Isaac Bryant (q.v.)

BRYANT, John Frederick III (75)

B 1753 London, 1760 to Bristol, ca.1775-76 beginning to work with father John Frederick Bryant I, ca.1773 went to London, ca.1778 returned to Bristol, F 1780, fl 1784 London, D 1791 London.

22 November 1753: born Market St, St James, Westminster, London (Bryant 1787: i).

Father returned to set up as a pipemaker in Bristol about the spring of 1760, taking family with him (Bryant op. cit. iii).

ca.1761 employed in packing father's export pipe-orders (ibid. iii-iv).

ca.1765-66 "At about twelve years of age" began to learn pipemaking with father though would much rather have gone to sea; spent much time reading which resulted in him neglecting his work, at which he was "extraordinarily slow and awkward" and for which he had a "very great dislike" (Stamp Act troubles of 1765-66 result in great decline in father's business, so that all his journeypeople had to be let go and the family used to continue the business, though of the 9 children only John Frederick III and 3 others old enough to be of any help) (ibid. vii-ix).

ca.1773 left home for London hoping to go to sea but finding even able seamen could hardly obtain work managed to get ca.3 months employment as pipemaker (ibid. xv-xvi).

Following this was employed [as a pipemaker?]for a month at Eton and for about as long at Henley; returned to London but could get only one week's work as pipemaker so decided to look for other employment (ibid. xvi).

Obtained work as a labourer digging the foundations of a new barracks at Woolwich but injured in cave-in and laid off. Worked in pipemaking for a month, then as a jobber in the rope-grounds, then working occasionally with the cranes in the docks. Eventually obtained work as a pipemaker with Samuel Richards II of Bristol (q.v.) who was then working at Woolwich (presumably this ca.1774) (ibid. xvii-xviii, xix).

ca. 1775 continued to work for Richards then worked again at the barracks carrying a hod (ibid. xviii).

ca.1777 father John Frederick I died but as John Frederick III's brother (prob. Samuel Bryant II - q.v.) and sister (prob. Mary Bryant - q.v.) were continuing the father's business and the youngest children adequately cared for at public school he decided to remain at Woolwich (ibid. xix).

ca.1777-78 various bricklaying jobs (ibid. xx).

ca. 1778 Samuel Richards II leaving his business at Woolwich as he had married "a young woman with some considerable expectations" offered John Frederick III first refusal on the business; Bryant went to Bristol to try to raise cash by selling his share of a house left him and his brothers and sisters by a great-aunt but was unsuccessful. Loan arranged through foremen with whom he had worked [presum. as bricklayer] but the landlord of the pipemaking premises refused to rent it to Bryant as he had once lampooned the landlord's daughter in verse. As removal of equipment and the erection of a new kiln were beyond Bryant's means the project fell through (ibid. xxi).

Following this disappointment Bryant decided to go to sea and soon afterwards joined the privateer "Lord Macartney", captain one Barclay, bound for "the grenades" but after he had been on board a fortnight someone told the captain Bryant was near-sighted and he was discharged. This occurred at Wapping, and he was immediately picked up by a press gang who took him to their headquarters, the "Waterman's Arms" opposite Union Stairs, where the landlady interceded for him and persuaded the press to allow him to serve as a member of their gang. To his astonishment he found the press, under a Lieut. Chubb of the "Princess Royal", comprised men "of great civility and real good nature" whose officer was "a gentleman of the greatest humanity". He never, he averred "saw an instance of unnecessary cruelty or insult". However, Bryant was not long in the press before the landlady again spoke for him and procured his release to work for her in place of a sick servant for nearly two months (ibid. xxii-xxiii).

Following this he gained employment again as a pipemaker (late 1778?) though intending to go to sea again, but meeting a young woman decided to marry her and began to consider setting up in business in Bristol. However, business there was still very slack and he found it impossible to set up on his own, instead helping his brother and sisters in the family business (ibid. xxiii-xxiv).

Bryant then (1779?) arranged for his fiancee to come to Bristol instead of his going to London to marry her as arranged, because it would have been too dangerous for him to travel as "the press [was] in the greatest heat all through the country". She arrived and took "a place of service" in Bristol while Bryant set up in a disused workshop in the family home with some old equipment of his father and began making pipes on his own account, firing them in the same kiln as his sister used (ibid. xxiv).

7 September 1780: free because son of John Frederick Bryant I of Bristol, pipemaker decd.

To try to drum up business Bryant twice went to Carmarthen, "that place taking off great quantities of the Bristol goods", but though he received many promises of support nothing came of it, and as business was so poor he delayed his marriage for "some years" until things improved a little (Bryant 1787: xxiv-xxv).

Over the years Bryant notes several verses he had composed; he now found that some songs he composed brought him custom and his wife worked hard in the pipemaking business supplying customers in the city while he, generally twice a week, went about the country with a hamper of pipes travelling 10, 15, and often 20 miles out (ibid. xxv).

At this point (early 1780s) his wife had a child, and though their profit was not as great as they could have earned at journeywork the hope of improved business kept them optimistic. However, his wife became seriously ill after the birth of the child and remained so for nearly 6 months, being unable to assist at all in the business (ibid. xxv-xxvi).

A little after this (still early 1780s) Bryant went to Swansea where he had heard a pipemaker's premises was lying empty to see if he could obtain the house as he knew Swansea "to be a place of considerable trade" or failing that to see whether he could obtain a few orders. He took with him a few shillings' worth of his goods to sell en route and was lucky enough to sell them all before reaching the New Passage ferry across the Severn; staying overnight at the inn there he was invited to sing and did well enough to be given free board and lodging. Arriving at Swansea, however, he found the premises had been sold and demolished over a year previously, but he picked up a number of orders and set out for Bristol. By this time he was penniless and by the time he reached New Passage could neither buy food nor his passage, but some of the boatmen recognizing him as their entertainer from his outward journey gave him food and drink and promised him free passage in return for again entertaining them. However, a gentleman arrived at the inn and ordered a small boat to be made ready to take him across and offered to take Bryant in return for his singing some songs and Bryant crossed in this manner. At the other side Bryant continued to entertain the gentleman, ending up by singing one or two songs of his own composition. The gentleman then gave Bryant his address and asked to be sent copies of one or two of Bryant's compositions, giving him a present and saying he would hear from him before long (ibid. xxvi-xxxi).

Some two months later a gentleman left a message for Bryant to meet him at the Long Room, Hotwells, and there together with a clergyman companion asked Bryant for examples of his verse and renditions of his songs. The gentleman called on Bryant the next day accompanied by a Col. G---- and assured Bryant of his friendship and that of the gentleman met at New Passage. What followed is not clearly described except that Bryant was patronized and his poetry advertised and "The tobacco-pipe trade being greatly on the decline" and the firing of the pipes affecting his already weak eyes he decided to set up on the stationary, book, and print-selling business in London with the help of his patrons (ibid. xxxi-xxxiii).

This was by 1784, for in that year the poll-book records him in London; it also records there his cousin and namesake John Frederick Bryant II (q.v.) and there is no means of identifying which is which, but one is listed at High Holborn, St Giles, the other at Barnaby St, St Giles. The former voted for Cruger and Peach, the latter for Cruger.

1787: at time of publication of his biography and poems Bryant was in business at 35 Long Acre (Bryant 1787: xxxiii).

Subsequent research revealed that Bryant's benefactor (whom Bryant never names) was the Solicitor General, Archibald Macdonald; subsequent to 1787 Bryant moved to the Strand, which suggests his business was prospering, and he died there of consumption in 1791 (Southey (ed) 1831: 162).

(Either his son or a son of John Frederick Bryant II the Devereaux Jones Bryant free 14 January 1797 in Bristol as a scrivener; the father referred to as deceased at this time.)

BRYANT, Mary (76)

fl ca.1777-85

ca.1777-79 probably she (no name given) noted as running, along with an unnamed brother (probably Samuel Bryant II - q.v.) the business of her deceased father John Frederick Bryant I (q.v.) who had died ca.1777 (Bryant 1787: xix, xxiv).

1785 Lewin's Mead (The Bristol Dir.).

Prob. younger sister of John Frederick Bryant III and older sister of Samuel Bryant II (q.v.).

BRYANT, Samuel I (77)

F 1747, fl 1784

27 June 1747: free because son of John Bryant of Bristol, pipemaker.

1774 Polls - St Michael; voted for Cruger and Burke.

(10 September 1777: son Isaac Bryant free - q.v.).

(7 September 1780: son John Frederick Bryant III free - q.v.).

1781 Polls - he and nephew Samuel Bryant II (q.v.) both listed, one in St James and the other in St Michael: in view of 1774 poll entry (above) Samuel I probably the St Michael voter. Former voted for Cruger, latter for Daubeny.

(14 April 1784: son-in-law William Lansdown free having married his daughter Sarah.)

1784 Polls - same entries as for 1781 polls (above); Samuel I probably the St Michael voter. St James Samuel Bryant voted for Cruger, St Michael Samuel Bryant for Brickdale and Daubeny.

BRYANT, Samuel II (78)

fl ca.1777, F 1780, fl 1784

ca.1777-79 probably he (no name given) who assisted his sister (probably Mary Bryant - q.v.) running the business of her deceased father John Frederick Bryant I (q.v.) who had died ca.1777 (Bryant 1787: xix,xxiv).

7 September 1780: free because son of John Frederick Bryant I of Bristol, pipemaker decd.

1781 Polls - he and uncle Samuel Bryant I (q.v.) both listed, one in St James, the other in St Michael: in view of Samuel I being listed in the 1774 poll in St Michael, Samuel II is probably the St James voter. St James Samuel Bryant voted for Cruger, St Michael Samuel Bryant for Daubeny.

1784 Polls - same entries as for 1781; St James Samuel Bryant voted for Cruger, St Michael Samuel Bryant for Brickdale and Daubeny.

Prob. younger brother of John Frederick Bryant III and Mary Bryant (q.v.).

BUCKERIDGE, John (79)

A 1704, alive 1706

13 November 1704: son of John Buckeridge of Bristol, cooper, apprenticed to Devereaux I and Rebecca Jones for 7 yrs.

22 July 1706: turned over with the consent of master, friends, and himself to William and Bridget Taylor to serve the remainder of his term.

BUCKLER, Charles (80)

A 1705, F 1713, fl 1726/7, D by 1729

15 May 1705: son of Francis Buckler of Warminster, Wiltshire, peruke-maker, apprenticed to John and Mary Squibb for 7 yrs.

7 August 1713: free having been apprenticed to John Squibb.

1722 Polls - St Michael; voted for Earl and Elton.

15 August 1726: he and wife Margaret took over John Lee from Rebecca Harris.

20 January 1726/7: he and wife Margaret took Thomas Morgan apprentice.

Dead by 16 May 1729 when Thomas Morgan turned over to John Macey [II?] because master deceased.

(Both Buckler and his wife - here called Sarah - recorded as deceased 29 May 1729 when James Lee was turned over to Thomas and Hannah Owen [either Thomas Owen II or Thomas Owen III] by order of the Tolzey.)

BULL, James I (81)

A 1657, F 1665

7 September 1657: son of Thomas Bull of Wells, Somerset, yeoman, to Thomas and Elizabeth Powell [sic - Poyte is meant] for 7 yrs and 1 covenant yr for which he was to receive one suit and a cloak worth £3.

8 September 1657: turned over to Flower and Christian Hunt to serve the remainder of his term.

13 November 1665: free having been apprenticed to first Thomas Poyte and then Flower Hunt.

(11 June 1675: his apprentice Lawrence Bull free - apprenticeship record not found.)

(29 October 1680: his son James Bull II apprenticed to Edward Randall I.

The re-apprenticing of James Bull I to Flower Hunt one day after his being apprenticed to Thomas Poyte possibly indicates some irregularity in the initial apprenticeship.

BULL, James II (Butt) (82)

A 1680, F 1690, poss. fl 1694/5

29 October 1680: son of James Bull I of Bristol, pipemaker, apprenticed to Edward I and Rachel Randall for 7 yrs.

1 October 1690: free having been apprenticed to Edward Randall I.

Probably this James Bull, noted only as of Bristol, who obtained marriage licence 14 October 1690 to marry Mary Evans of St Thomas; at St Thomas's or Redcliff (Hollis and Ralph (eds) 1952: 214).

Probably this James Bull together with wife Mary who took William Gallopp apprentice 15 December 1690.

Probably this James Bull, noted only as of Bristol, who obtained marriage licence 9 December 1962 to marry Mary Hassell of St Thomas; at St Thomas's (Hollis and Ralph (eds) 1952: 236).

Probably this James Bull, noted only as of Bristol, who was bondsman to a licence of 1 February 1694/5 for John Taylor, butcher, and Sarah Hassell of St Thomas; at St Thomas's (Bull's name appears in MS as Wolfe but Hollis and Ralph identify him as Bull) (Hollis and Ralph (eds) op. cit. 260).

(6 December 1704: his apprentice William Gallopp free - Bull's name in freedom rolls here appears as Butt.)

For complexities of Bull's marriages see under James Abbott.

BULL, Lawrence (83)

F 1675

Apprenticeship record not found.

11 June 1675: free having been apprenticed to James Bull I.

BULMAN, Walter (84)

A 1716

22 October 1716: son of Mark Bulman late of Bristol, mariner decd, to Henry and Mary Edwards for 7 yrs; friends to find apparel, £3 paid with the apprentice.

BURT, Thomas (85)

fl 1739

1739 Polls - St Philip and Jacob; voted for Southwell.

BUTT, James - see BULL, James II X

BUTT, Joseph (86)

A 1670, F 1704

27 August 1670: son of George Butt of "Straton super Fosse", Somerset, pipemaker, to Edward Randall I and wife [blank left for wife's name] for 7 yrs.

8 April 1704: free having been apprenticed to Edward Randall I.

BYE, G. (87)

fl second half of C19

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953. Address listed as Eyre's [sic - Eyer's] Lane [St Jude's].

BYE, William (88)

F 1812

10 October 1812: free having married Elizabeth daughter of William Jones of Bristol, hallier decd.

1812 Polls - Church Lane, St Philip and Jacob In-parish; voted for Romilly and Hunt.

CABELL, Robert (89)

A 1639/40

29 January 1639/40: son of Robert Cabell of Bristol, yeoman, apprenticed to William and Margaret Lewis for 7 yrs.

CABLE, Richard (90)

A 1643

5 April 1643: son of Richard Cable of Bristol, scrivener decd, apprenticed to Thomas Deane and wife [blank left for wife's name] for 7 yrs and 1 covenant yr.

CALLOWAY, John (Kelloway, Kellaway) (91)

A 1641, F 1648, fl 1670

1 June 1641: son of John Calloway of Marnehill, Dorset, fuller, apprenticed to John and Jane Wall for 7 yrs.

30 September 1648: free having been apprenticed to John Wall - name appears as Kelloway.

1 October 1650: he and wife Elizabeth took Thomas Jones apprentice.

22 April 1651: he and wife Cicily tool Peter Kelloway [sic] apprentice - John Calloway's name also appears as Kelloway.

September 1652: founder-member of the Bristol Pipemakers' Guild.

19 May 1656: he and wife Cicily took John Reynolds apprentice.

17 May 1670: he and wife Cicily took son Philip Calloway I apprentice.

(5 February 1680: son and apprentice Philip Calloway I free.)

Stems marked MIC/KEL/WAY datable to the first quarter of the C18 occur at Shaftesbury, where the maker may have worked (Atkinson 1970c: 213, 214 fig 5,3) and datable to ca.1740 at Salisbury and at Hythe (Atkinson 1971: 187). If maker's name is Michael Kelway and not Michael Way there might be a connection with the Bristol Calloways in view of the origin of that family in Dorset.

CALLOWAY, Peter (Kelloway) (92)

A 1651

22 April 1651: son of John Kelloway [sic]- Peter Calloway's name also spelt Kelloway [of Marnehill: no county given], clothworker decd, apprenticed to John and Cicily Kelloway [sic]for a third of (tercio) 7 yrs and 1 covenant year and at the end of his apprenticeship to receive one cloak, one vestment vel 1s in pecunia numerata (or 50s in hard cash).

Peter Calloway apparently a younger brother of John Calloway - i.e. Peter apprenticed to his elder brother - as the father of both seems to be the same. If this is the case, the father, John Calloway sr, possibly died between 1 June 1641 when son John apprenticed (q.v.) and father not referred to as deceased and 22 April 1651 when son Peter apprenticed (above) and father is referred to as dead.

CALLOWAY, Philip I (Kellaway) (93)

A 1650, F 1680/1, fl 1722

17 May 1670: son of John Kellaway [sic - Philip Calloway I's name also spelt Kelloway] of Bristol, pipemaker. apprenticed to his father and mother John and Cicily Calloway for 7 yrs.

5 February 1680/1: free having been apprenticed to John Kellaway [sic] - name appears as Kellaway.

27 February 1704/5: he and wife Anne took John Purnell apprentice [surname appears as Kellaway].

1 July 1706: he and wife Anne took Richard Redwood apprentice [surname appears as Calloway].

(7 April 1708: apprentice Richard Redwood discharged.)

4 April 1711: he and wife Anne took Aaron Gane apprentice [surname appears as Calloway].

(7 August 1713: apprentice John Purnell free.)

Either he or son Philip Calloway II (q.v.) and wife Christian took John Fryer apprentice 23 February 1713/4.

1715 Polls - two Philip Calloways listed, one in St Thomas and the other in Temple.

Either he or son Philip Calloway II and wife Alice took Richard Gill apprentice 18 June 1717.

Either he or father Philip Calloway I and wife Christian took Benjamin Naish apprentice 29 July 1719.

1722 Polls - a Philip Calloway listed in All Saints and a Philip Kelloway [sic] in St Thomas; former voted for Elton, latter for Hart.

When John Fryer becomes free 7 August 1723 his master, one or other of the Philip Calloways (see above), referred to as dead.

When Richard Gill becomes free 19 June 1724 his master, or or other of the

Philip Calloways (see above), not referred to as dead.

When Benjamin Naish becomes free 27 July 1727 his master, one or other of the Philip Calloways but the same Philip Calloway as master of John Fryer (see above), not referred to as dead though on evidence of John Fryer freedom entry Calloway must have been dead.

Because Christian Calloway is noted in 1713/4 and 1719 and Alice Calloway in 1717 they must represent the wives of Philip Calloway I and Philip II. Which is which, however, cannot be resolved - Philip I's wife was Anne by 1704/5 and she was still his wife in 1711 (see above).

CALLOWAY, Philip II (94)

F 1711, fl 1722

25 September 1711: free because son of Philip Calloway I of Bristol, pipemaker.

Either he or father Philip Calloway I (q.v.) and wife Christian took John Fryer apprentice 23 February 1713/4.

1715 Polls - two Philip Calloways listed, one in St Thomas and the other in Temple.

Either he or father Philip Calloway I and wife Alice took Richard Gill apprentice 18 June 1717.

Either he or father Philip Calloway I and wife Christian took Benjamin Naish apprentice 29 July 1719.

1722 Polls - a Philip Calloway listed in All Saints and a Philip Kelloway [sic] in St Thomas; former voted for Elton, latter for Hart.

When John Fryer becomes free 7 August 1723, his master, one or other of the Philip Calloways (see above), referred to as dead.

When Richard Gill becomes free 19 June 1724 his master, one or other of the Philip Calloways (see above), not referred to as dead.

When Benjamin Naish becomes free 27 July 1727 his master, one or other of the Philip Calloways but the same Philip Calloway as master of John Fryer (see above), not referred to as dead though on evidence of John Fryer freedom entry Calloway must have been dead.

For complexity of wives of Phillip Calloway I and Philip II see under Philip Calloway I.

CAREY, E. (95)

fl second half of C19

Occurs in undated list of makers remembered by or whose names were familiar to Thomas George IV (1872-1968) compiled 6 January 1953 but not in similar list said to date to 1878 or 1880 and compiled September 1952. Address listed as Blue Factory, Gt George St [St Jude's] - for identification of this and possible association of this maker with other Carey pipemakers (qq.v.) see 6: VIII, also 6: VI.

Probably a successor or predecessor of Donald Cox (q.v.).

CAR[E]Y, Henry (96)

A 1766, F 1768, fl 1784

13 January 1766: son of Richard Car[e]y late of Bristol, weaver decd, apprenticed to Edward and Mary Sinderlin for 7 yrs; friends to find apparel and washing.

9 March 1768: free because son of Richard Car[e]y of Bristol, sergemaker, decd.

1774 Polls - St James; voted for Cruger and Burke.

1781 Polls - St James; voted for Cruger.

1784 Polls - Castle Precincts; voted for Cruger and Peach.

Surname given here as Carey as father Richard is almost certainly also the father of Israel II Carey (q.v.) and William Carey (q.v.) and in entries relating to these latter two and also to the father the spelling Carey is almost invariably used.

Apprenticeship lasted only 26 months.

CAREY, Israel I (97)

f1 1722?

According to Oswald (in litt. 5 May 1968) listed in 1722 Polls; not found by this writer.

CAREY, Israel II (Cary) (98)

A 1748, F 1756, fl 1787, apparently D by 1791

11 August 1748: son of Richard Carey late of Bristol, weaver decd, apprenticed to James and Susannah Carter for 7 yrs; 40s paid with apprentice the gift of Ald. Kitchen decd.

27 January 1748/9: turned over by consent of all parties and the Mayor to Thomas and Elizabeth Grant.

15 (?) April 1751: turned over again to George and Elizabeth Ebbery, Grant being dead.

19 February 1756: free having been apprenticed to Thomas Grant and later to George Ebbery [sic - as noted above, apprenticed to James Carter before Grant and Ebbery].

29 March 1759: he and wife Mary took over Jeremiah Cotner apprentice from James II and Rebecca Stephens.

26 March 1764: he (no wife mentioned) took Thomas Cole apprentice.

(9 March 1768: apprentice William Rees free.)

(1 November 1774: apprentice Thomas Cole free.)

1774 Polls - St James; voted for Cruger and Burke.

1775 38 Lewin's Mead (Sketchley's Dir.)

(16 September 1780: son John Carey (q.v.) free.)

1781 Polls - St James; voted for Cruger.

March 1782: poor-books rate J. [sic] Carey as occupier at 15 Castle Green, Richard Champion's old premises (see below).

1783 "Israel Carey & Son", Castle Green (Western and Midland Dir.) - son is John Carey (q.v.).

1784 Polls - Castle Precincts; voted for Cruger.

1785 Castle Green, son not noted (The Bristol Dir.)

1787 ditto (The Bristol and Bath Dir.)

Presumably dead by 1791 when son John Carey noted alone at Castle St (The Universal British Dictionary).

Pountney (1920: 215-7) locates the Careys' Castle Green premises as number 15, earlier the "china manufactory" of Richard Champion, the kiln being at the back of the premises. According to H. Owen (1873: 20) the poor-rate entries for March-September 1770 list the premises as "void" but by September 1771 and up to September 1773 William Cookworthy and Co were rated as occupiers, at £34. From September 1773 to September 1780 the premises were rated to Richard Champion and Co and in 1781 to Champion alone, but from March 1782 the occupant was J. [sic] Carey, pipemaker. FIG 213 is an illustration from Owen (loc. cit.) taken from a photograph which shows the back of 15 Castle Green (Owen misnumbers it 17 - Pountney 1920: 215); it lay in fact really off Tower St, immediately adjacent to the back of the properties on the E side of Lower Castle St, about halfway along the latter (FIG 214, which is taken from Pountney).

(Subsequent to the drafting of this thesis, a heap of clay-pipe wasters was discovered in 1971 at the angle of Broad Weir and Lower Castle St, close by the Castle Green premises noted above (see FIG 214), and attributed to Israel Carey II (R.G. Jackson 1972); in 1973, identical material was found in a kiln-tip deposit immediately beneath Whitefriars, a lane off Lewin's Mead (R. Price in litt. 18 January 1974), which must belong to Carey's business in Lewin's Mead, where he was immediately prior to his move to Castle Green (see above; see also pp571 n.39 and 766-7).)

CAREY, Israel III (99)

F 1812, fl 1811 (poss. 1809)-29

8 October 1812: free because son of John Carey of Bristol, pipemaker.

Listed in Matthews's directories for 1809-10 at Coal Yard, Bread St (the address of his father John Carey (q.v.)), with residence given 1810 as Broad Mead, but no trade given.

1811 Bread St - residence Broad Mead (ditto).
1812 Ann [sic] St - residence Broad Mead (ditto).
1813-14 Pennywell Lane - residence Broad Mead (ditto).
1815 George's [sic] St; Counter, 4 River St, Rope Walk (ditto).
1816 relevant pages in directory missing.
1817 as 1815 (ditto).
1818 Sugar House, Gt George St; Counter, 4 River St, Rope Walk (ditto).
1819 Sugar House, Gt George's St (ditto).
1820-21 Gt George St (Counting House, Sugar House) (ditto).
1822 Counting House, Sugar House Gt George St (ditto).
1823-26 New St (ditto).
1827-29 Stoke's Croft (ditto).

1817-18 George St [sic], Counting House, River St, Rope Walk (Bristol Index or Evans' Dir.)

1812 Polls - Broadmead, St James; voted for Romilly and Protheroe.

1820 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Bright.

Son or perhaps grandson of John Carey (q.v.) - see latter's entry for the problem.

CAREY, John (Cary) (100)

F 1780, fl 1792; D by 1795 according to one source, fl 1791-1815 according to another source

16 September 1780: free because son of Israel Carey II of Bristol, pipemaker.

1781 Polls - St James; voted for Cruger.

13 December 1783: he (no wife mentioned) took John Lewis II apprentice.

1784 "Israel Carey & Son", Castle Green (Western and Midland Dir.) - son is John Carey.

1784 Polls - Castle Precincts; voted for Cruger.

2 April 1792: he and wife Mary took John Adams apprentice.

22 June 1792: he and wife Mary took Whitson Moore apprentice.

Dead by 16 February 1795 when son John Carey apprenticed to a Bristol brightsmith.

(8 October 1812: son - or grandson? (see below) - Israel Carey III free.)

1791 Castle St (The Universal British Dictionary).
1792 ditto (New Bristol Dir.).
1794-95 Old Market St (Matthews's Dir.).
1797-1801 Redcross St (ditto).
1803 Old Market St (ditto).
1805 Redcross St (ditto).
1806-08 Redcross St - Coal Yard in Bread St (ditto).
1809 Bread St (ditto).
1810 Bread St - residence Hanham (ditto).
1811-15 Lamb St (ditto).
1816 relevant pages in directory missing.

not noted from 1817 onwards.

Directory evidence, which indicates John Carey was in independent business continuously 1791-1815, appears to contradict apprentice-roll evidence which indicates John Carey died between 1792 and 1795. While directory entries can be far from accurate it seems unlikely they would continue an extinct entry for over 20 yrs particularly as differing addresses are given over the period; the alternatives appear to be either that the apprentice-roll entry of 1795 describing John Carey as being deceased when a son John was apprenticed to a brightsmith is wrong or else that John had another son - also called John - who continued his father's business. This last would not be impossible, for other examples are known: Flower and Christian Hunt, Bristol pipemakers (qq.v.) had two sons John (among other children) both apprenticed as pipemakers and both alive together at the end of the C17 (see HUNT, John II and HUNT, John III), while Thomas Lewis II, another Bristol pipemaker (q.v.) had two sons Thomas both of them pipemakers and both alive in the mid-C18 (see LEWIS, Thomas III and LEWIS, Thomas IV); and other examples are known (e.g. Hollis (ed) 1949: 15 n.1).

Thomas George IV (B 1872, D 1968) on his September 1952 list of pipemakers remembered by or whose names were familiar to him and said to date to 1878 or 1880 noted that

> On the site where Old Market St Wesleyan Chapel stood, this Chapel was built in 1815 demolished about 1921, My Fathers Great Grandfather, ['great' has been added subsequently] helped Mr John Carey, when pressed for time to catch the Ships going to the West coast of Africa.

Thomas IV's "father's great-grandfather" was Thomas George I (q.v.) and as John Carey was indeed working on Old Market St at one point - ca.1800 (above) - and Bristol was developing a trade with West Africa at this time (6: VII(b)(3)) this George family tradition of helping Carey and of Carey's West Africa trade may well be based on fact (see also 6:VI and VIII).

CAREY, William (101)

A 1757, F 1767, fl 1775

13 January 1757: son of Richard Carey late of Bristol, weaver decd, apprenticed to Joseph I and Martha Edwards for 7 yrs; 40s paid with apprentice the gift of Ald. Kitchen decd.

25 July 1767: free having been apprenticed to Joseph Edwards I.

1775 6 Lower Maudlin Lane (Sketchley's Dir.).

CARRINGTON, James [cf CHERRINGTON] (102)

F 1781, fl 1784

27 January 1781: free having married Hester daughter of William Showell of Bristol, cordwainer.

1784 Polls - St James; voted for Daubeny.

Brother-in-law of William Showell (q.v.).

CARTER, James (103)

F 1734, fl 1754

14 May 1734: free because son of Richard Carter I of Bristol, pipemaker.

1739 Polls - St Peter; voted for Southwell.

11 August 1748: he and wife Susannah took Israel Carey II apprentice (Carey (q.v.) transferred 27 January 1748/9 to Thomas and Elizabeth Grant).

1754 Polls - St Philip and Jacob; voted for Philipps and Beckford.

(20 April 1757: his son Robert Carter (q.v.) apprenticed to John Lee.)

CARTER, Richard I (104)

A 1699, F 1706, fl 1714, D by 1723

17 June 1699: son of Jacob Carter of High Littleton, Somerset, coal-miner, apprenticed to James and Jane Abbott for 7 yrs.

4 June 1706: free having been apprenticed to James Abbott.

27 October 1714: he and wife Rebecca took Charles Hickes apprentice.

(14 February 1721/2: apprentice Charles Hickes free.)

Dead by 12 November 1723 when son Thomas Carter (q.v.) apprenticed to Rebecca Arthurs.

(12 May 1729: son Richard Carter II (q.v.) apprenticed to John [II?] and Rebecca Macey, at which time Richard Carter I again noted dead.)

(14 May 1734: son James Carter (q.v.) free, at which time father not noted as dead.)

Free 13 days before apprenticeship due to finish.

CARTER, Richard II (105)

A 1729, F 1738, fl 1739

12 May 1729: son of Richard Carter I of Bristol, pipemaker decd, apprenticed to John [II?] and Rebecca Macey for 7 yrs.

6 October 1738: free having been apprentice of John Macey, decd.

1739 Polls - Castle Precincts; voted for Combe.

CARTER, Robert (106)

A 1757, F 1767, fl 1784

20 August 1757: son of James Carter of Bristol, pipemaker, apprenticed to John and Susannah Lee for 7 yrs.

18 April 1767: free having been apprenticed to John Lee.

1774 Polls - St Michael; voted for Brickdale and Cruger.

1781 Polls - St James; voted for Daubeny.

1784 Polls - St Philip and Jacob Out-parish; voted for Cruger.

CARTER, Thomas (107)

A 1733

12 November 1733: son of Richard Carter I late of Bristol, pipemaker decd, apprenticed to Rebecca Arthurs widow of John Arthurs for 7 yrs; friends to find apparel.

CARTER, William (108)

fl 1641, D by 1647

14 December 1641: he and wife Edith took Thomas Birchinhed apprentice.

Dead by 15 May 1647 when daughter Margery apprenticed to Alice Keynor wife of Giles Keynor, cordwainer, to be brought up in the art of knitting.

CASY, John (109)

fl 1620s

Described as an aquavite-maker and tobacco-pipe maker, he and wife Mary took Alexander Cherrington I (q.v.) apprentice at an unstated date sometime after 7 October 1622 (for explanation on uncertainty of date see Alexander Cherrington I entry).

CHAFFEY, Richard (Chaffy) (110)

A 1719, F 1727, fl 1754

29 June 1719: son of Richard Chaffey late of Bristol, labourer decd, apprenticed to John Squibb [no wife mentioned] for 7 yrs; £6 paid with apprentice the gift of the Public Charity of the Society of the Men (?) of the County of Somerset.

17 July 1727: free having been apprenticed to John Squibb.

1734 Polls - St Thomas; voted for Scrope and Elton.

1754 Polls - St Mary Redcliff; voted for Nugent.

CHALLENDER, Joseph I (Challener) (111)

A 1732, F 1741, fl 1774, D by 1784

20 November 1732: son of William Challender of Brislington, Somerset [occupation not stated] apprenticed to Anthony I and Hester Baily for 7 yrs; friends to find apparel, £3 paid with apprentice ex publico dono.

25 October 1736: turned over with the consent of all parties to William and Mary Nicholas for remainder of term.

28 April 1741: free having been apprenticed to Anthony Baily I and later William Nicholas.

1754 Polls - St James; voted for Nugent.

1774 Polls - ditto; voted for Brickdale.

Dead by 6 April 1784 because son Joseph Challender II (q.v.) free then at which time father described as deceased.

CHALLENDER, Joseph II (112)

F 1784

6 April 1784: free because son of Joseph Challender I of Bristol, pipemaker decd.

1784 Polls - Temple; voted for Brickdale and Daubeny.

CHAMP, Joseph and Co (113)

fl 1852

1852 25 Castle St (Slater's (late Pigot's) Dir.)

Although Champ and Co are listed here as pipemakers it appears to be extremely doubtful as to whether they did in fact make pipes. The above directory appears to be the sole source alleging they did, whereas the Matthews's directories consistently list the firm as "tobacconists and snuff manufacturers" in the 1840s and 1850s (first at 25 Castle St and 118 Temple St, later at the Castle St address alone). Hunt and Co's Bristol and Welch Towns Directory of 1848 also lists Champ and Co - at 23 Castle St - as "tobacco and snuff manufacturers".

CHAMPION, George (114)

fl 1794-1800; poss. Warden Society of Merchant Venturers 1770, bankrupt 1781, D 1817

1794 Redcliffe St (Matthews's Dir.).

1797-1800 ditto (ditto).

Minchinton (1957: 69) identified this George Champion with the Warden of the Society of Merchant Venturers in 1770 who went bankrupt in 1781 and died 7 January 1817. Actual proof of the identification of the George Champion with the pipemaker, other than the coincidence of name and period, seems lacking and it might seem odd that someone prestigious enough to be a Warden of the SMV would become a pipemaker even if he had gone bankrupt; however, Champion could have been the owner of a pipemaking business rather than an actual maker - as noted in 6: VI, Bristol pipemaking was evolving from the earlier cottage industries into small businesses and factories towards the end of the C18 and into the C19.

CHERRINGTON, Alexander I (Cherington, Charington) (115)

A 1620s, fl 1652, F 1654, fl ca.1660

(22 October 1621: son of Alexander Cherrington of Bristol, clothworker decd, apprenticed to John Lukins, shearman, and his wife Martha.)

(7 October 1622: discharged and apprenticed to Robert Blackborowe, brewer, and his wife Bridget.)

At an unstated date subsequent to the last again transferred, to John Casy, aquavite-maker and tobacco-pipe maker.

September 1652: presumably this Alexander Cherrington founder-member of Bristol Pipemakers' Guild, though not free until 1654 (below) - guild's charter claimed all founding members were freemen or freemen's widows.

20 April 1654: presumably this Alexander Cherrington free because he was the "son of Alexander Cherrington" - no trade given for Cherrington sr and it could be argued that the Alexander Cherrington F 1654 was a son of the Alexander Cherrington A to John Casy in the 1620s (above).

ca1660: must have taken Edward Randall I apprentice, for when Randall becomes free 7 May 1668 he is described as having been an apprentice of Alexander Cherrington and then serving out his time with Flower Hunt. Randall's apprenticeship record not found, however. Cherrington probably died about this time; if he was the Alexander Cherrington apprenticed in the 1620s he would have been over 50 by 1660.

The Alexander Cherrington apprenticed in the early 1620s successively to Lukins, Blackborowe, and Casy may be the Alexander Cherrington with separate apprenticeship entries of 6 December 1619 to Martha widow of Henry Willcox shearman (father noted as Alexander a clothmaker decd) and of 5 October 1620 to William Dunn, shearman, and his wife Susan (father noted as Alexander a tucker decd).

CHERRINGTON, Alexander II (116)

A 1679, fl 1722?

29 December 1679: son of William Cherrington I of Bristol, pipemaker, apprenticed to father William and Elizabeth his wife for 7 yrs.

According to Oswald (1960a: 63) listed in 1722 Polls; not found by this writer.

CHER[R]INGTON, John (117)

A 1673, released 1675, F 1680/1, fl 1696

14 August 1673: son of William Cherrington I of Bristol, pipemaker, apprenticed to father William and Elizabeth his wife for 7 yrs.

17 July 1675: entry crossed out, Cherrington removed by Mayor and Aldermen with the consent of himself and his master, no benefit to be had and name to be removed from the Tolzey Book.

7 February 1680/1: presumably this John Cherrington free having been apprenticed to William Cherrington I, despite the termination of his apprenticeship noted above.

1696: listed with father William I in Temple parish in list of Bristol inhabitants for that year (Ralph and Williams (eds) 1968: 248).

CHERRINGTON, Richard (118)

F 1703/4, fl 1722

5 January 1703/4: free because son of William Cherrington [I?] of Bristol, pipemaker.

1722 Polls - Temple; voted for Earl and Elton.

More likely to be son of William Cherrington I than William II because presumably became free ca.21 and therefore born ca.1683, and William II not free until 1690 so that if Richard was his son William II would have had to have been married well before taking his freedom, which seems unlikely. Unfortunately William II's apprenticeship entry to his father William I has not been found - this would have given additional evidence of William II's age.

CHERRINGTON, William I (Cherington, Chearington) (119)

F 1660, fl 1679, prob. fl 1696

9 May 1660: free by order of Mayor, Aldermen, and Common Council.

14 August 1673: son John Cherrington apprenticed to William I and wife Elizabeth (apprenticeship cancelled 17 July 1675).

29 December 1679: son Alexander Cherrington apprenticed to William I and wife Elizabeth.

(7 February 1680/1: his apprentice John Cherrington free - presumably his son John noted above but if so this contradicts the cancellation of son's apprenticeship noted above; fur further details see John Cherrington entry.)

(3 December 1690: son William Cherrington II free.)

1696: probably the William Cherrington noted in Temple parish with wife Mary and son John in list of Bristol inhabitants of that year (Ralph and Williams (eds) 1868: 248).

Could be a son of Alexander Cherrington I, but no actual evidence for this.

CHERRINGTON, William II (120)

F 1690

Apprenticeship record not found.

3 December 1690: free because son and apprentice of William Cherrington of Bristol, pipemaker.

(29 March 1708: presumably his son John apprenticed to Thomas Powne weaver and wife Barbara - discharged 18 July 1709.)

CHICK, Charles (121)

A 1688, F 1697, fl 1707; D by 1721/2 according to one source, fl 1722 according to another

17 September 1688: son of Charles Chick of Clifton, Gloucestershire, glassmaker, apprenticed to John and Mary Sinderling for 7 yrs; father to deliver one suit of apparel at end of second yr.

7 April 1697: free having been apprenticed to John Sinderling.

4 November 1700: he and wife Elizabeth took Richard Milsom apprentice.

29 August 1707: he and wife Elizabeth took Thomas Pope apprentice.

(22 March 1707/8: his apprentice Richard Milsom free.)

According to burgess rolls dead by 13 March 1721/2 when son Samuel Chick (q.v.) free; nevertheless 1722 Poll Book records him voting for Earl and Elton at that election from Temple.

CHICK, Samuel (122)

F 1721/2, fl 1739

13 March 1721/2: free because son of Charles Chick of Bristol, pipemaker decd.

1722 Polls - St Michael; voted for Earl and Elton.

1734 Polls - Temple; voted for Scrope and Elton.

1739 Polls - Temple; voted for Southwell.

CHILTON, Daniel - see CHILTON, Nathaniel X

CHILTON, Nathaniel (Chilken; first name also appears as Daniel) (123)

A 1695/6, F 1703, fl 1722

26 February 1695/6: son of Giles Chilton of Compton Dando, Somerset, baker, apprenticed to John and Mary Sinderling for 7 yrs and 6 months covenant; master and mistress to find him apparel during his term and to give him double apparel [for covenant term?], friends to deliver to the master and mistress at end of first 2 yrs "one suit of apparel throughout with hat, shoes, stockings and linen".

1696: noted with John and Mary Sinderling in Temple parish in list of

Bristol inhabitants for that year (Ralph and Williams (eds) 1968: 249).

7 November 1699: turned over to Joseph I and Jane Stanford, Sinderling being dead.

24 May 1703: free having been apprenticed first to John Sinderling and then to Joseph Sanford.

1722 Polls - presumably the Daniel Chilton voting from St James (see 6: V).

CISSELL, William (Cicell) (124)

F 1660/1, fl 1669/70

19 February 1660/1: free because son of Thomas Cissell of Bristol trade not given [but not a pipemaker].

6 May 1669: he and wife Mary took William Ablin apprentice.

(9 June 1669: his apprentice John Lewis I free.)

3 February 1669/70: he and wife Mary took Christopher Touchin apprentice.

COGSWELL, Thomas (125)

A 1713

28 July 1713: son of Walter Cogswell of Bristol, brewer, to Devereaux I and Rebecca Jones for 7 yrs; friends to find apparel.

COLE, Benjamin (126)

A 1689

9 April 1689: son of Benjamin Cole late of Almondsbury parish, Gloucestershire, farmer, apprenticed with the consent of the Overseers of the Poor and the Guardians of the parish church of Almondsbury to Thomas [sic] and

Anne Hickes for 7 yrs [no pipemaker Thomas Hickes recorded; presumably William Hickes I (q.v.) who had a wife Anne].

COLE, Thomas (127)

A 1764, F 1774, fl 1774 Bristol, fl 1781 Deptford, Kent, fl 1784-1812 London

26 March 1764: son of Thomas Cole late of Bristol, labourer decd, apprenticed to Israel Carey II [no wife mentioned] for 7 yrs.

1 November 1774: free having been apprenticed to Israel Carey II.

1774 Polls - St James; voted for Cruger and Burke.

1781 Polls - DEPTFORD, KENT; voted for Cruger.

1784 Polls - Lower East Smithfield, St John, Wapping, LONDON; voted for Cruger.

1812 Polls - Petticoat Lane, Aldgate, LONDON; voted for Romilly and Hunt.

COLLARD, John (128)

A 1732, F 1739

16 August 1732: son of Thomas Collard late of Bristol, tailor decd, apprenticed to John and Ruth Bryant for 7 yrs; friends to find apparel.

4 October 1739: free having been apprenticed to John Bryant (Bryant referred to in this entry as a "tobacco cutter maker" and burgess book index calls Bryant a "tobacco cutter").

1739 Polls - St James; voted for Combe.

COLLINS, Thomas (129)

F 1721/2, fl 1722

Apprenticeship record not found.

13 March 1721/2: free having been apprenticed to Edward Reed.

1722 Polls - St Michael; voted for Earl and Elton.

COMMONS, James (130)

F 1774

Apprenticeship record not found.

4 October 1774: free having been apprenticed to William Commons decd.

1774 Polls - St Mary Redcliff; voted for Cruger.

COMMONS, William (131)

F 1756, fl 1757, D by 1768

12 May 1756: free having married Elizabeth daughter of Thomas Edwards of Bristol, pipemaker decd.

8 December 1757: he and wife Elizabeth took William Russell apprentice.

Dead by 24 February 1768 when apprentice William Russell free.

(4 October 1774: apprentice James Commons free, at which time William Commons referred to as dead.)

(6 February 1781: apprentice James Huish free, at which time William Commons referred to as dead.)

COOKWORTHY, Frederick (132)

fl 1802-?, D by 1815?

Partner, presumably junior, in firm of Ring and Cookworthy (q.v., see also RING, Robert). Nephew of William Cookworthy the porcelain manufacturer, married 11 August 1789 sister of Joseph Ring II the potter (see Frank and Ring family tree under RING) called Sarah by member of Frank family (quoted in Pountney 1920: 161 and n.1) and Susannah elsewhere by Pountney (p.258). (Pountney does not comment on this discrepancy, but the correct name is probably Sarah for reason given below.) Frederick Cookworthy was also a haberdasher and worsted dealer in Union St and elsewhere in the city, being succeeded in the latter business by his wife. Pipemaking venture established with Robert Ring in 1802 (advertisement in Felix Farley's Journal of 4 September 1802 quoted in Pountney 1920: 259) "Opposite George's Deal Yard, Temple Backs" and orders were taken at 14 Bath St and the Bristol Pottery at Water Lane, Temple St (14 Bath St is the address 1815-16 of Sarah Ring (q.v.) which is why this name and not Susannah is probably the correct name of Cookworthy's wife - the entry also suggests Cookworthy was dead at this time, though Ring and Cookworthy firm is listed until 1817; it does not indicate Sarah was continuing a worsted dealer's business as Pountney indicates). Pountney also says the firm made stoneware at one time (p. 259) but that after Cookworthy left the firm it made only pipes (p.258); however, the 1802 advertisement indicating the establishment of the business certainly mentions only a "Tobacco-Pipe Manufactory", and Pountney also says (p.259) that Robert Ring continued the business "for many years" after Cookworthy's death which suggests the latter remained with the firm until he died. There are a number of problems with Pountney's comments on the firm of Ring and Cookworthy and on Robert Ring as well as the above ones relating to Cookworthy. For further discussion see RING AND COOKWORTHY and RING, Robert.

COOPER, John (133)

A 1706, F 1713, D by 1721

25 June 1706: son of Edward Cooper of Bristol, woolcomber, apprenticed to John I and Eleanor Macey for 7 yrs.

6 August 1713: free having been apprenticed to John Macey I.

Dead by 27 November 1721 when widow Margaret Cooper (q.v.) took Thomas Lewis IV apprentice.

COOPER, Margaret (134)

fl 1721

Widow of John Cooper (q.v.).

27 November 1721: took Thomas Lewis IV apprentice.

(22 October 1739: apprentice Thomas Lewis IV free.)

COOPER, William (135)

fl 1640/1, fl 1642

8 February 1640/1: he and wife Joan took Robert Hancock apprentice.

23 June 1642: he and wife Joan took Walter Hopkins apprentice.

Cooksey (1974: 29, 30; in litt. 26 November and 18 December 1974) suggests Cooper may be the William Cooper of Poole who was granted a 21-year lease on 19 November 1625 to exploit certain pipeclay deposits at Poole (see p.255); but the document giving Cooper this lease (Cooksey MS 1) describes him as a "Gentleman" of Thickfurzes, a farm near Poole, and it seems very unlikely that he would ever have become an artisan, either in Poole or elsewhere.

COPE, Mary (136)

fl 1774-95

1794-95 West St (Matthews's Dir.).

Presumably widow of William Cope (q.v.).

COPE, William (137)

fl 1775-91, D by 1794

1775 55 West St (*Sketchley's Dir*.).

1791 West St (*The Universal British Dir*.).

Dead by 1794 when Mary Cope (q.v.), presumably widow, in business on West St.

CORCORAN AND CO (A.J. VEALE) - see VEALE, A.J. X

CORCORAN, Thomas John (138)

fl 1890-99, fl 1904

1890-91 22 New St (*Wright's Dir*.) - succeeds Thomas Williams III (q.v.).
1892-99 14 Lamb St (ditto) - succeeds W. Pring (q.v.).
1900-03 not noted.
1904 136 York Rd (ditto).

1899-1902 14 Lamb St (*Bristol and District Trades Dir*.).

1904 Tower St, Temple (*The New Bristol Dir. 2d ed*) - as "Corcoran and Co."

Thomas John Corcoran noted as landlord of the "Swan", New St, 1887-90. *Bristol and District Trades Dir*. entries for 1900-02 (above) probably an error; 1904 entry in *The New Bristol Dir. 2d ed* probably a confusion with the firm of "Corcoran and Co (A.J. Veale)" noted in *Wright's Dir*. 1903-4 at Tower St - for this entry and further details see VEALE, A.J. Corcoran subsequently emigrated to America according to a niece, Mrs. L. Adams of Bristol (*in litt.* 28 October 1971), who recalls her father, H. Mills, working for Corcoran. For earlier and later occupants of 14 Lamb St and earlier occupants of 22 New St see 6: VI. 136 York St still exists (FIGS 215-16).

CORNER, Nicholas (139)

A 1734, alive 1739

11 July 1734: son of Charles Corner late of Bristol, yeoman decd, apprenticed to Thomas Owen [either Thomas Owen II or III] and wife Hannah for 7 yrs; £3 charity money paid with apprentice.

22 May 1739: turned over with consent of all parties to William and Mary Foord for remainder of term.

COTNER, Jeremiah (140)

A 1756, alive 1759

9 November 1756: son of Jeremiah Cotner of Bristol, weaver, to James II and Rebecca Stephens for 7 yrs, 40s paid with the apprentice the gift of Ald. Kitchen decd.

29 March 1759: turned over with consent of all parties and the Mayor to Israel I and Mary Carey for remainder of term.

COTTON, - (141)

fl second half of C19

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953. No first name given; address listed as Gt Ann St [St Jude's].

COULES, Joseph (Cowles, Cowls) (142)

A 1728, F 1737, fl 1739 Bristol, fl 1754-84 London

24 June 1728: son of John Coules of Bristol, skinner, apprenticed to Thomas and Sarah Harvey for 7 yrs.

12 October 1734: turned over by order of Tolzey to William and Mary Nicholas for remainder of term, Harvey and his wife being dead.

3 May 1737: free having been apprenticed first to Thomas Harvey and then turned over to William Nicholas.

1739 Polls - St James; voted for Southwell.

1754 Polls - LONDON; voted for Nugent.

1774 Polls - Playhouse Yard, Drury Lane, LONDON; voted for Cruger and Burke.

1781 Polls - Featherstone St, Moorfields, LONDON; voted for Cruger.

1784 Polls - Hermitage Bridge, Wapping, LONDON; voted for Brickdale and Daubeny.

Tolzey Book entry indicated Coules had been "left destitute both of Instruction and Maintenance" and complaint was made by apprentice and friends; the entry also notes that Nicholas was to follow the old indentures of the apprentice. Coules has a very neat hand; Coules's mother Mary makes a mark (this latter implies the apprentice's father dead by this time).

COULES, Richard (Cowles) (143)

A 1722, F 1731, fl 1739

29 October 1722: son of John Coules late of Bristol, cork-cutter decd, apprenticed to Henry and Mary Edwards for 7 yrs; friends to find apparel "et lotion'".

20 December 1727: turned over by consent of all parties to John and Mary Purnell for remainder of term.

22 September 1731: free having been apprentice of Henry Edwards [sic - Purnell not noted].

1734 Polls - St Michael; voted for Coster.

1739 Polls - ditto; voted for Southwell.

COUSENS, Joseph (Cousins) (144)

A 1759, F 1774, fl 1774 Bristol, fl 1781-84 London

11 April 1759: son of Joseph Cousens late of Bristol, sawyer decd, apprenticed to James II and Rebecca Stephens for 7 yrs.

3 October 1774: free having been apprentice of James Stephens II decd.

1774 Polls - St James; voted for Cruger and Burke.

1781 Polls - Gt Windmill St, St Ann, Soho, LONDON; voted for Cruger.

1784 Polls - Gt Windmill St, St James, Westminster, LONDON; voted for Cruger.

COWLES - see COULES X

COX, Donald (145)

fl second half of C19

Occurs in list of makers remembered by or whose names were familiar to Thomas George IV (1872-1968) said to date to 1878 or 1880 and compiled September 1952 but not in similar, undated, list compiled 6 January 1953. Address listed as Blue Lead Factory or Blue Factory, Gt George St [St Jude's].

Probably a predecessor or successor of E. Carey (q.v.).

CROSS, Robert (146)

A 1697

31 August 1697: son of Robert Cross late of Wells, Somerset, cordwainer decd, apprenticed to Thomas and Joan Watts for 7 yrs.

CRUMPTON, William (147)

fl 1842-56

1842 Wade St (Pigot's Dir.).

1844-56 45 Wade St (Matthews's Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.).

1852 12 Wade St (Slater's (late Pigot's) Dir.).

1853 45 Wade St (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

CULLEN, William (Cullin) (148)

A 1700, F 1707, fl 1708, fl 1712?, D by 1754

1 July 1700: son of William Cullen of Bristol, mariner, apprenticed to William and Bridget Taylor for 7 yrs.

4 July 1707: free having been apprenticed to William Taylor.

14 August 1708: he and wife Eliza took Robert Loveless apprentice.

13 November 1712: his apprentice Robert Loveless turned over to John I and Eleanor Macey "by consent of all parties", which phrase suggests Cullen was alive at this time.

(28 January 1715: Robert Loveless free having been first apprenticed to William Cullen and then to John Macey.)

Dead by 8 April 1754 when son-in-law Thomas Cummins (q.v.) free having married Cullen's daughter Margaret.

CULLIMORE, Thomas (149)

A 1641, F 1656, fl Bristol 1657, apparently fl Gloucester 1664

13 April 1641: son of Baston Cullimore of Bristol, yeoman, apprenticed to Sarah Harris widow of John Harris to be educated "in arte de le tobaccopipemakers" [length of time not specified].

22 April 1656: free having been apprenticed to Sarah Harris, widow.

26 November 1657: he and wife Elizabeth took William Haines apprentice.

1664: apparently working in Gloucester - son apprenticed to a London pewterer in that year and father noted working in Gloucester (Oswald *in litt*. 9 March 1971; cf Oswald 1960a: 65).

CUMMINS, Thomas (150)

F 1754, D by 1784

8 April 1754: free having married Margaret daughter of William Cullen of Bristol, pipemaker decd.

1754 Polls - St Stephen; voted for Philipps and Beckford.

Dead by 3 May 1784 when son-in-law Thomas Lloyd (q.v.) free having married Cummins's daughter Mary.

CURRY, John (151)

A 1691, released 1694

15 October 1691: son of John Curry of Bristol, glover decd, apprenticed to William and Mary Kinton for 7 yrs.

19 December 1694: discharged with consent of himself, his Master and his mother, to have no benefit of his service already done.

DANMER, Richard (152)

fl 1672

18 April 1672: he and wife Anne took son Thomas Danmer apprentice.

DANMER, Thomas (153)

A 1672

18 April 1672: son of Richard Danmer, apprenticed to his father and wife Anne for 7 yrs.

DARK, Jonathan (154)

F 1812, fl 1820

12 October 1812: free having married Mary widow of Thomas Hull of Bristol, peruke-maker and on paying a fine of 40s; referred to not as a pipemaker but as a pipe-burner.

1812 Polls - Whitson Ct, St James (referred to as a pipe-burner); voted for Romilly.

1818 Polls - Horsefair, St James (referred to ditto); voted for Davis and Baillie.

1820 Polls - Blackfriars, St James (referred to ditto); voted for Davis and Baillie.

Presumably Dark's trade was either specializing in firing the products of other pipemakers - which seems unlikely - or more probably collecting used pipes, refiring them to burn out accumulated dirt, carbon, and nicotine and selling them cheaply (such a practice is known - see 5:II).

DAVIS, Benjamin (155)

A 1709, dismissed 1713

9 May 1709: son of John Davis late of Langolman, Pembrokeshire, quarrier decd, apprenticed to James Jenkins and wife (latter not named) for 7 yrs.

21 (?) November 1713: discharged by order of Tolzey of same date.

Tolzey Book entry (f.127v) records Davis to have been "a very disobedient and idle servant and hath divers times run away from his said Master's service" and contrary to his indentures and "the Custome of ye sd City intermarried and thereupon departed from his Master's service" was to be discharged and to have "noe benefitt of the Freedom of this City" by having been apprentice there. (Jenkins's wife not mentioned in this account either.)

DAVIS, Francis (156)

A 1691

15 October 1691: son of William Davis of Caerleon, Monmouthshire, tanner, to Cibil widow of John Tucker, for 7 yrs.

DAVIS, Isaac (157)

A 1787

15 January 1787: son of William Davis of Bristol, labourer, apprenticed to John II and Martha Okely for 7 yrs; master to find apparel and washing, £10 paid with apprentice the gift of the Grateful Society in Bristol.

DAVIS, John I (158)

A 1723

28 September 1723: son of John Davis of Bristol, porter, apprenticed to George and Elizabeth Ebbery for 7 yrs; friends to find apparel, 40s paid with apprentice.

DAVIS, John II (159)

fl 1722

1722 Polls - St Mary Redcliff; voted for Earl and Elton.

DAVIS, John III (160)

fl 1850

1850 Pipe Lane (FIG 204 ; Hunt's Bristol Dir.).

DAVIS, William (161)

A 1683, F 1713, fl 1734

31 October 1683: son of William Davis of Bristol, baker, apprenticed to John [sic - Richard is meant] and Anne Nunney for 7 yrs.

10 August 1713: free having been apprenticed to Richard Nunney decd.

1715 Polls - St James.

1722 Polls - ditto; voted for Earl and Elton.

1734 Polls - ditto; voted for Scrope and Elton.

DEANE, Thomas (162)

fl 1643-53

5 April 1643: he and wife [blank left for name] took Richard Cable apprentice.

17 October 1651: he and wife [no name given] took John Symonds apprentice.

September 1652: founder-member of Bristol Pipemakers' Guild. Guild charter claims all founding members freemen or widows of freemen but no evidence that Deane was ever a freeman pipemaker.

14 November 1653: he and wife [no name given] took William Bosly apprentice.

DEANE, William (163)

A 1675

20 October 1675: son of William Deane late of Bath, Somerset, weaver, apprenticed to Robert and Alice Sheppard for 7 yrs.

DENNIS, Isaac (164)

A 1728, F 1739

11 July 1728: son of Thomas Dennis of Bristol, labourer, apprenticed to William and Susannah Naylor for 7 yrs; friends to find apparel, 30s paid with apprentice.

8 October 1739: free having been apprenticed to William Naylor.

1739 Polls - St James; voted for Southwell.

Brother of Thomas Dennis (q.v.).

DENNIS, Thomas (165)

A 1723, F 1734, fl 1781

10 June 1723: son of Thomas Dennis of Bristol, labourer, apprenticed to William I and Mary Tippet for 7 yrs; friends to find apparel.

14 April 1727: turned over with consent of all parties to William and Susannah Naylor.

9 December 1734: free having been apprenticed first to William Tippet I and later to William Naylor.

1739 Polls - St James; voted for Southwell.

1754 Polls - ditto; voted for Nugent.

1774 Polls - Christchurch; voted for Cruger and Burke.

1781 Polls - Christchurch; voted for Daubeny.

Brother of Isaac Dennis (q.v.).

DODDING, Thomas (166)

fl 1652

September 1652: founder-member of Bristol Pipemakers' Guild. Guild's charter claims all founding members freemen or freemen's widows but no evidence that Dodding was ever a freeman pipemaker.

DOWDESWELL, William (Dowdswell) (167)

fl 1830

29 July 1830: free because son of John Dowdeswell of Bristol, coppersmith, decd.

1830 Polls - Pipe Lane, Temple (FIG 204); voted for Baillie.

DOWN, John (Downs) (168)

fl 1839-49

1839-49 partner in the firm of Sa[u]nders and Down (see SAUNDERS, James) noted at 19 Gt Ann St 1839-48 and at 10 Gt Ann St in 1849. Presumably a junior partner to Saunders who had become free 1812 and who lived at 19 Gt Ann St. Replaced by Philip Guy (q.v.) in 1850, the business's title becoming Sa[u]nders and Guy, though Saunders himself may have been dead by this time (see SAUNDERS, James).

1841 Polls - Sion Place [subsequently renamed The Paddock - see 6:V), St Philip and Jacob Out-parish; voted for Berkeley.

DRIVER, Philip (169)

fl 1691

10 July 1691: son of Philip Driver of Bristol, cordwainer decd, apprenticed to William I and Mary Tippet for 7 yrs.

DUCY, Robert (Ducey, Duty) (170)

F 1727, fl Tellisford, Somerset, 1729-54

27 July 1727: free having married Susannah daughter of Richard Abbots of Bristol, pipemaker.

1729: working at Tellisford, Somerset, took one T. Tanner apprentice there, £4 coming with the apprentice (Oswald 1960a: 67 - freedom date for Ducy of 1726 given here is wrong).

1734 Polls - Philip's Norton [sic - Norton St Philip, nr Tellisford], SOMERSET; voted for Scrope and Elton.

1739 Polls - Tellisford, SOMERSET; voted for Southwell.

1754 Polls - ditto; voted for Nugent.

DYER, Evan (171)

A 1670, F 1680/1

2 April 1670: son of Richard Dyer of Thornbury, Gloucestershire, smith, apprenticed to Richard and Anne Nunney for 7 yrs plus 2 covenant yrs at the end of which he was to receive 30s.

7 February 1680/1: free having been apprentice of Richard Nunney.

EBBERY, George (Ebery, Ebbory, Every, Avery?) (172)

F 1721, fl 1781

Apprenticeship record not found.

23 October 1721: free having been apprenticed to William Taylor of Bristol, pipemaker decd.

1722 Polls - St James; voted for Hart.

28 September 1723: he and wife Elizabeth took John Davis I apprentice.

30 September 1731: he and wife Elizabeth took Samuel Harris I apprentice (Harris discharged 25 November 1736).

1734 Polls - St Michael; voted for Coster.

3 October 1734: he and wife Elizabeth took James Bond apprentice.

1739 Polls - St Michael; voted for Southwell.

31 March 1740: he and wife Elizabeth took George Berry apprentice.

(22 April 1747: his apprentice George Viner, originally with Charles Hickes, free (date of Viner's transfer to Ebbery not found).)

(27 June 1747: his apprentice George Berry free.)

16 September 1747: he and wife Elizabeth took Thomas Iles apprentice.

15 (?) April 1751: he and wife Elizabeth took over Israel Carey II from Thomas Grant.

(19 February 1756: his apprentice Israel Carey II free having been previously apprenticed to James Carter and then Thomas Grant.)

23 November 1763: he and wife Elizabeth took Peter Quarman II apprentice.

(3 October 1774: his apprentice Peter Quarman II free.)

1774 Polls - St Michael (the words "fr St Michael" appear after Ebbery's entry in the St Michael's poll list); voted for Brickdale and Cruger.

1781 Polls - ditto, also same entry after name; voted for Daubeny.

The 1722 polls include in St James, in addition to George Ebbery, a George Avery, pipemaker, - noted by Oswald (1960a: 55) as George Amery - who is otherwise unknown. The most likely explanation is that Avery is a doublet of Ebbery. Both voted for the same candidate, Hart.

As Ebbery's apprenticeship entry was not found it is difficult to give an accurate estimate of Ebbery's age when he died, but as he can hardly have been under 21 when he became free in 1721 and was still alive in 1781 he must at least have been in his 80s when he died.

EDGAR, James (173)

F 1812, fl 1837

1 October 1812: free having married Sally daughter of Joseph Alsbury of Bristol, house-carpenter decd.

1812 Polls - Narrow Plain, St Philip and Jacob In-parish; voted for Romilly and Hunt.

1818 Polls - Host St, St Augustine; voted for Davis and Baillie.

1802 Polls - ditto; voted for Davis and Bright.

1830 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Baillie and Vyvyan.

1835 Polls - ditto; voted for Vyvyan and Miles.

1837 Polls - ditto; voted for Miles and Fripp.

EDGAR, Thomas (174)

F 1830, fl 1830-62

26 July 1830: free having married Hannah daughter of Thomas Newton of Bristol, bricklayer.

1830 Polls - George [sic] St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Baillie and Vyvyan.

1841 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Miles and Fripp.

1847-49 9 Gt George St (Matthews's Dir.).
1850-62 Gt George St (ditto).

1848 9 Gt George St (Hunt's Bristol and Welch Towns Dir.).

1850 Gt George St (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

Apparently initially shared premises with Thomas Young II (q.v.) who is noted at 9 Gt George St 1844-49.

EDWARDS, Francis (175)

F 1683, fl 1715

9 November 1683: free because son of Philip Edwards I of Bristol, pipemaker.

2 September 1685: he and wife Elienor took Thomas Hughes apprentice.

7 October 1692: he and wife Elienor took Philip Wyatt apprentice.

1715 Polls - St Michael.

(30 August 1715: son Thomas Edwards (q.v.) free.)

EDWARDS, Henry (176)

A 1689, F 1699, fl 1723, poss. fl 1727

29 December 1689: son of Jone [sic] Edwards of Trelleck parish, Monmouthshire, farmer, apprenticed to Richard and Mary Foot for 7 yrs.

6 September 1699: free having been apprenticed to Richard Foot.

3 September 1703: he and wife Dorothy took Thomas Gifford apprentice.

24 November 1712: he and wife Mary took Benjamin Martin apprentice.

1715 Polls - St John.

22 October 1716: he and wife Mary took Walter Bulman apprentice.

1722 Polls - St John; voted for Hart.

29 October 1722: he and wife Mary took Richard Coules apprentice.

(17 June 1723: his apprentice John Wickham free.)

9 September 1723: he and wife Mary took John Okely I apprentice.

20 December 1727: his apprentice Richard Coules turned over to John and Mary Purness "with consent of all parties", which phrase suggests Edwards was still alive at that date.

(22 September 1731: his apprentice Richard Coules free.)

(23 May 1732: his former apprentice John Okely I free.)

(24 October 1739: son-in-law Thomas Thomas (q.v.) free by marriage to his daughter Susannah.)

EDWARDS, John I (177)

A 1740, F 1747, fl 1754

8 September 1740: son of Jonas I Edwards late of Bristol, pipemaker decd, apprenticed to William and Susannah Pearce for 7 yrs; 40s paid with apprentice the gift of Ald. Kitchen decd.

27 June 1747: free because son of Jonas Edwards I of Bristol, pipemaker.

1754 Polls - Temple; voted for Nugent.

EDWARDS, John II (178)

F 1784, fl 1784-1812 London, fl 1818 Bristol

12 April 1784: free having married Elizabeth Smith daughter of Josias Wickham of Bristol, pipemaker [Elizabeth Smith presumably a widow].

1784 Polls - St John, Wapping, LONDON; voted for Brickdale and Daubeny.

1812 Polls - Petticoat Lane, Aldgate, LONDON; voted for Romilly and Hunt.

1818 Polls - Temple St, Temple; voted for Davis and Protheroe.

EDWARDS, Jonas I (179)

F 1722, D by 1740

13 October 1722: free because son of Henry Edwards of Bristol, pipemaker.

Dead by 8 September 1740 when son John Edwards I (q.v.) apprenticed.

(27 June 1747: son John I free.)

(27 June 1747: son Jonas II free.)

(29 June 1747: son Joseph I free.)

EDWARDS, Jonas II (180)

F 1747, fl 1754 Bristol, fl 1774-84 London

27 June 1747: free because son of Jonas Edwards I of Bristol, pipemaker.

1754 Polls - St Michael; voted for Nugent.

1774 Polls - Bedfordbury, LONDON; voted for Cruger and Burke.

1781 Polls - Pye St, St Hohn, Westminster, LONDON; voted for Cruger.

1784 Polls - ditto; voted for Brickdale and Daubeny.

EDWARDS, Joseph I (181)

F 1747, fl 1792, prob. D by 1794

29 June 1747: free because son of Jonas Edwards I of Bristol, pipemaker.

1754 Polls - Temple; voted for Philipps and Beckford.

13 January 1757: he and wife Martha took William Carey apprentice.

14 March 1763: he and wife Martha took Charles Bosher apprentice.

(25 July 1767: apprentice William Carey free.)

1774 Polls - Temple, voted for Brickdale and Cruger.

(5 October 1774: apprentice Charles Bosher free.)

(6 October 1774: son Joseph Edwards II free.)

1775 70 Temple St (Sketchley's Dir.).

1781 Polls - Temple; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

1785 Temple St (The Bristol Dir.).

1787 ditto (The Bristol and Bath Dir.).

1791 ditto (The Universal British Dictionary) - as Edwards and Son.

1792 ditto (The New Bristol Dir.) - ditto.

The Joseph Edwards listed at the same address from 1794 onwards (to 1823) is presumably Joseph Edwards II (q.v.), son of Joseph I; it is therefore likely Joseph I died between 1792 - when the entry Edwards and Son implies he was alive - and 1794.

EDWARDS, Joseph II (182)

F 1774, fl 1823

6 October 1774: free because son of Joseph Edwards I of Bristol, pipemaker.

1774 Polls - Temple; voted for Cruger and Burke.

1781 Polls - ditto; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

1791 Temple St (The Universal British Dictionary) - as Edwards and Son.

1792 ditto (New Bristol Dir.) - ditto.

1794-95 ditto (Matthews's Dir.).

1797-98 ditto (ditto).

1800-01 ditto (ditto).

1803 ditto (ditto).

1805-20 ditto (ditto).
1821-23 70 Temple St (ditto).

1817-18 Temple St (Bristol Index, or Evans' Dir.).

The Edwards and Son entries (1781-92) refer to Joseph Edwards I (q.v.) and Joseph II, who were evidently in partnership latterly.

EDWARDS, Philip I (183)

F 1649/50, fl 1668/9, D by 1683

21 March 1649/50: free by order of Mayor and Aldermen on condition he take no apprentices except those who were poor men's children and born and bred within the city.

4 April 1651: he and wife Sarah took Edward Battle apprentice.

November 1651: noted in connection with the James Fox excise affair (Nott and Ralph (eds) 1948:68-9) - see 6: II (c) (5).

September 1652: founder-member of Bristol Pipemakers' Guild.

14 November 1653: he and wife Sarah took John Walter apprentice (Walter was the son of a deceased Bath glover, so that the Edwardses taking him apprentice would seem to violate the conditions imposed on Edwards when he took his freedom - above).

(20 August 1660: his apprentice Edward Battle free.)

13 January 1668/9: he and wife [no name given] took his son Philip Edwards II apprentice.

(8 April 1674: his son-in-law William Wyatt of Bristol, glazier, husband of his daughter Sarah free.)

(8 February 1680/1: son Philip Edwards II free.)

Dead by 9 November 1683 when son Francis Edwards (q.v.) free.

EDWARDS, Philip II (184)

A 1668/9, F 1680/1, fl 1696

13 January 1668/9: son of Philip Edwards I of Bristol, pipemaker, apprenticed to his father and father's wife [no name given for her] for 7 yrs.

8 February 1680/1: free having been apprenticed to his father Philip Edwards I.

24 May 1686: described only as of Bristol, licence to marry Margaret Arnold of St Michael; at St Michael's (Hollis and Ralph (eds) 1952: 172).

1696: noted with wife Margaret and son Philip in St Michael in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 127).

Signs marriage bond with a mark.

EDWARDS, Thomas (185)

F 1715, fl 1716/7, poss. fl 1717, D by 1765

30 August 1715: free because son of Francis Edwards of Bristol, pipemaker.

7 January 1716/7: he and wife Sarah took James Roach apprentice.

17 December 1717: his apprentice James Roach turned over to Henry and Anne Hoar "with consent of all parties", which latter phrase suggests Edwards was still alive at this date.

(31 July 1727: his former apprentice James Roach free.)

Dead by 12 May 1756 when son-in-law William Commons (q.v.), husband of daughter Elizabeth, free.

ELLIOTT, Bartholomew (186)

A 1632/3

20 March 1632/3: son of Henry Elliott late of Bristol, sailor decd, apprenticed to Edward I and Elizabeth Lewis for 8 yrs and 1 covenant yr without payment; apprentice to receive "for interest" at end of apprenticeship tools to the value of 20s.

ELLIS, - (187)

fl second half of C19

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled Spetember 1952 and the other undated and compiled 6 January 1953. No first name given; address listed as Asher Lane, Redcross St [St Philip and Jacob In-parish].

ELLIS, Charles (188)

fl 1840-53

1840-50 Gt Ann St (Matthews's Dir.).

1851-53 Ayres [sic - Eyer's] Lane, Gt George St (ditto).

1852 Ayres Lane (Slater's (late Pigot's) Dir.).

1853 Gt George St (Scammell's Gloucester, Bristol and South Wales Dir.).

ELLIS, Jane (189)

fl 1851-57

1851-54 Ayres[sic - Eyer's] Lane, Gt George St (Matthews's Dir.).

1855-57 Gt George St (ditto).

1852 Ayres Lane (Slater's (late Pigot's) Dir.).

1853 Gt George St (Scammell's Gloucester, Bristol and South Wales Dir.).

Appears to be the successor to and presumably widow of Joseph Ellis (q.v.).

ELLIS, Joseph (first name also appears as "Josh." and "G.") (190)

fl 1833-50

1833-50 Gt George St - next to "Crown and Anchor" (Matthews's Dir.) - 1842-45 initial appears as G.; "Crown and Anchor" at corner of Eyer's Lane.

1837 Gt George St (Robson's Dir.) - first name appears as Josh.

1842 ditto (Pigot's Dir.).

Apparently succeeded by Jane Ellis (q.v.), presumably his widow.

ELLIS, Olive (first name appears twice as Oliver) (191)

fl 1837-43

1837 15 Temple St (Robson's Dir.) - as Oliver Ellis.

1839 ditto (Matthew's Dir.) - as Oliver Ellis; also running a "Staffordshire warehouse".
1840 ditto (ditto) - as Olive Ellis.
1841-43 ditto (ditto) but appearing in general entries section only. Apparently ceased pipemaking 1843;in 1844 appears only as having the Staffordshire warehouse.

As first name appears as Oliver only in first two entries and is thereafter replaced by Olive the probability is that Oliver is in error.

EMBLEN, Thomas (192)

A 1698/9

11 January 1698/9: son of Henry Emblen of Bristol, mariner, apprenticed to Richard and Maud Abbots for 7 yrs.

EVAN, Edward (193)

A 1676

16 October 1676: son of Evan David of Llangattog Crickhowell, Brecknockshire, farmer, apprenticed to William Evans [either William Evans I or William Evans II] and wife Katherine for 7 yrs.

EVANS, Elizabeth (194)

M bet. 1675 and 1681, widowed bet. 1684 and 1688/9, fl 1690

EVANS, Isaac (Evens, first name also appears as Isack) (195)

with father 1696, F 1698, M 1700, fl 1700/1

1696: noted with sibling Vertue as son of William Evens [sic] "pipemaker" and Martha wife [one of the two William Evanses pipemakers noted below] in St Nicholas in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 141).

20 July 1698: free because son of William Evans of Bristol, pipemaker.

18 April 1700: licence to marry Sarah Griffith of St John; at either St John's parish church, the Cathedral, or the Bishop's Chapel (Hollis and Ralph (eds) 1952: 307).

4 January 1700/1: he and wife Sarah took Richard Brewer apprentice.

(10 August 1713: his apprentice Richard Brewer free.)

Oswald (1968: 31 and 33 nos 45-9;1969: 19 and 21 nos 23-5) notes a number of bowls from Port Royal, Jamaica, marked IE facing the smoker which he suggests are probably products of Isaac Evans. These bowls, however, are quite different from those with a cartouche on the right side enclosing a shield marked with an anchor and the name EVANS round the base of the shield, some of which also occur with the initials RT facing the smoker, presumably indicating a partnership with Robert Tippet II (q.v.) F 1678 fl 1713 poss. fl 1720 or even Robert Tippet II (q.v.) F 1713 poss. fl 1720. Pipes with a simple EVA/NS inside a cartouche on the right side of the bowl also belong to the same typological group as the "anchor" Evans pipes. The IE-marked bowls generally belong to Oswald's type 8 group datable to ca. 1680-1720 but a number do appear to be typologically early in this period.

It may be that either the IE-marked bowls belong to an unknown non-Bristol maker or that, in view of the known preference for Bristol makers of this period to put their initials on the bowl facing the smoker, they really read LE and are products of Llewellin Evans (q.v.). However, Isaac Evans was the son of one of the two William Evanses pipemakers at least one of whom and probably both used as a mark the letters WE facing the smoker, and one of these William Evanses was probably a brother of Llewellin Evans, so one could suggest that initially Isaac Evans used old family moulds and marked his products the way his family had done before him. Subsequently he could have obtained more up-to-date moulds personalized with his own cartouches (above).

Initially Isaac Evans must have been in business for himself, for he took an apprentice in 1700/1 (above); the lack of subsequent apprenticeship entries and the occurrence of the EVANS-marked bowls with the additional RT - Robert Tippet - in a shape likely to be early C18 (i.e. post-1700) suggests Evans may have given up independent business and become a contractor or a partner with Robert Tippet II and/or III. (Some sort of agreement other than simply becoming a journeyman is suggested by Evans being allowed to continue producing pipes with his own mark on them and merely adding a rather modest Tippet cypher; there may have been other rather similar agreements to judge by other combinations of makers' marks known (see 6: VII(b)(3)) - one such is Evans pipes with the additional ER, presumably indicating an association between Isaac Evans and either Edward Reed (q.v.) or Edward Randall II (q.v.). It is probably significant these combined marks all occur on pipes typologically or archaeologically datable to the earlier C18 - the period the Bristol pipe-industry was at its zenith.

EVANS, Llewellin (first name also appears as Luellen etc) (196)

prob. A 1654, F 1661, fl 1684, D by 1688/9

Probably the Llewellin Williams Bevan son of William Bevan of the town of "Brecknock", weaver, apprenticed 9 October 1654 to James and Jane Fox for 7 yrs; but if so he took his freedom (below) before his 7 yrs were up [noted also under BEVAN, Llewellin Williams].

31 May 1661: free having been apprenticed to James Fox.

23 February 1674/5: he and wife Mary took Henry Artus apprentice.

23 April 1675: he and wife Mary took Samuel Fishpell apprentice.

21 June 1678: bondsman, described only as of Bristol, in marriage licence for John Edwards, yeoman, of Bristol and Anne Jenkins [no parish given; no place of marriage given] (Hollis and Ralph (eds) 1952: 112).

20 April 1681: he and wife Elizabeth took Jacob Beekes apprentice (Beekes released 12 May 1684 by consent of all parties).

11 February 1681/2: he and wife Elizabeth took William Taylor apprentice.

(25 February 1681/2: his apprentice Henry Artus free.)

(13 November 1682: his apprentice Samuel Fishpell free.)

28 June 1684: he and wife Elizabeth took Devereaux Jones I apprentice.

30 June 1684: bondsman, described as of St Thomas, in marriage licence for John Pennery, sailor, and Susan Evans, both of St Thomas; at St Mark's alias Le Gaunts (Hollis and Ralph (eds) 1952: 151) [Susan Evans presum. a relative].

(18 February 1688/9: his apprentice William Taylor free.)

Dead by 23 February 1688/9 when widow Elizabeth Evans (q.v.) took Thomas Owen I apprentice.

(4 July 1690: widow Elizabeth took Robert Hodge apprentice.)

Possibly a brother of William Evans I (q.v.).

Signs first marriage bond in which he is a bondsman (1678) with his name, but signs second (1684) with a mark.

EVANS, William I (Evens) (197)

A 1653, F 1660, fl 1682, either he or William Evans II (q.v.) fl 1697

24 September 1653: son of Llewellin Evans of the town and county of "Brecknocke", weaver, apprenticed to Jane widow of John Wall for 7 yrs.

26 September 1660: free having been apprenticed to widow Jane Wall.

28 April 1668: either he or William Evans II and wife (no name given) took William Jones apprentice.

3 August 1669: either he or William Evans II and wife Janet took Richard Jones II apprentice (Jones released 19 February 1669/70).

29 December 1669: either he or William Evans II (no wife mentioned) took Nicholas Stokes apprentice.

3 February 1669/70: either he or William Evans II (no wife mentioned) took Thomas Moone or Moore apprentice.

30 April 1674: either he or William Evans II and wife Janet took Thomas Woddam apprentice.

24 November 1674: either he or William Evans II and wife Katherine took Robert Williams I apprentice.

16 October 1676: either he or William Evans II and wife Katherine took Edward Evan apprentice.

1 April 1678: either he or William Evans II, described only as of Bristol, granted licence to marry Mary Chocke (also described as of Bristol); at either Christchurch, St Michael's, or St Philip and Jacob's (Hollis and Ralph (eds) 1952: 110).

26 June 1680: either he or William Evans II and wife Mary took Paul Thomas apprentice.

11 April 1682: either he or William Evans II and wife Mary took Philip Lock apprentice.

15 September 1682: either he or William Evans II and wife Katherine took Edward Jones apprentice.

(31 March 1685: either William Evans I's apprentice or William Evans II's apprentice Robert Williams I free.)

20 July 1688: either he or William Evans II and wife Mary took George Pritchard apprentice.

6 October 1688: either he or William Evans II and wife Mary took Nathaniel Stone apprentice.

(5 October 1692: James Evans son of a William Evans pipemaker apprenticed to Jonathan New, shipwright, and wife Susannah, friends to find apparel.)

9 November 1693: either William Evans I or William Evans II and wife Mary took William Morgan II apprentice.

(21 August 1695: either William Evans I's apprentice or William Evans II's apprentice George Pritchard free.)

1696: a William "Evens" described as a pipemaker and living with wife Martha and children Isack (see EVANS, Isaac) and Vertue in King St, St Nicholas, in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 141).

10 May 1697: the William Evans husband of Mary Evans in 1693 and to whom William Morgan II had been apprenticed in that year (above) still alive, for Morgan was transferred to Devereaux Jones I (q.v.) on this date and it was noted the transfer was made with the consent of Morgan's master (i.e. Evans) and mother.

(20 July 1698: the Isaac Evans noted in 1696 (above) as son of the William Evans husband of Martha Evans free by patrimony.)

(3 November 1699: either William Evans I's apprentice or William Evans II's apprentice Nathaniel Stone free.)

William Evans I possibly brother of Llewellin Evans (q.v.).

It is unfortunately possible on evidence available so far to separate the two William Evanses after William II becomes free 1667. If the apprentice rolls for the period 1661-67 still survived the problem would almost certainly be solved quite readily, for William I must surely have been taking apprentices during this period, having become free 1660, and until

William II became free 1677 no other William Evans pipemaker would have been taking apprentices. As it is, however, the first apprenticeship recorded to the William Evanses occurs only in 1668 (above). References to the wives (or lack of them) among the two William Evanses gives the following sequence:

no name given or no wife noted	Janet	Katherine	Mary	Martha
1668				
1669	1669			
1669/70				
	30 April 1674	24 November 1674		
		1676		
			married 1678	
			1680	
		1682	1682	
			1688 (twice)	
			1693	
				1696

From this it is evident one of the William Evanses had no wife in the late 1660s while the other had a wife Janet. Subsequently (by 1674) the unmarried (or widowed?) William had married or remarried and the other William had remarried; one of these wives was Katherine and the other Mary. Unfortunately there is no overlap between on the one hand references to the unmarried William and to Janet, and on the other hand references to Katherine and to Mary, so that it is not even possible to say which of the latter two succeeded Janet and which married the unmarried William. Later again (by 1696) one of the William Evanses had married again, but again the lack of any overlaps prevent it being established which of Katherine and Mary this new wife, Martha, succeeded. If evidence could be found to indicate which William had which wives it could be established which had which apprentices; Ralph and Williams (1968) note no Katherine or Mary Evanses in 1696 who might fit the wives of these names, but the parish (and street) where the William Evans wife of Martha lived in is known (above) and parish records there might provide a starting point for working backwards.

EVANS, William II (Evens) (198)

A 1660, F 1667, fl 1682, either he or William Evans I (q.v.) fl 1697

11 July 1660: son of William Evans of "Brecknock", weaver, apprenticed to Jane widow of John Wall for 7 yrs.

9 November 1661: turned over to Robert I and Joan Tippet for remainder of term.

6 August 1667: free having been apprenticed first to Jane Wall and later to Robert Tippet I.

28 April 1668: either he or William Evans I and wife (no name given) took William Jones apprentice.

3 August 1669: either he or William Evans I and wife Janet took Richard Jones II apprentice (Jones released 19 February 1669/70).

29 December 1669: either he or William Evans I (no wife mentioned) took Nicholas Stokes apprentice.

3 February 1669/70: either he or William Evans I and wife Janet took Thomas Moone or Moore apprentice.

30 April 1674: either he or William Evans I and wife Janet took Thomas Woddam apprentice.

24 November 1674: either he or William Evans I and wife Katherine took Robert Williams I apprentice.

16 October 1676: either he or William Evans I and wife Katherine took Edward Evan apprentice.

1 April 1678: either he or William Evans I (described only as of Bristol) granted licence to marry Mary Chocke (also described as of Bristol); either at Christchurch, St Michael's, or St Philip and Jacob's (Hollis and Ralph (eds) 1952: 110).

26 June 1680: either he or William Evans and wife Mary took Paul Thomas apprentice.

11 April 1682: either he or William Evans I and wife Mary took Philip Lock apprentice.

15 September 1682: either he or William Evans I and wife Katherine took Edward Jones apprentice.

(31 March 1685: either William Evans I's apprentice or William Evans II's apprentice Robert Williams I free.)

20 July 1688: either he or William Evans I and wife Mary took George Pritchard apprentice.

6 October 1688: either he or William Evans I and wife Mary took Nathaniel Stone apprentice.

(5 October 1692: James Evans son of a William Evans pipemaker apprenticed to Jonathan New, shipwright, and wife Susannah, friends to find apparel.)

9 November 1693: either William Evans II or William Evans I and wife Mary took William Morgan II apprentice.

(21 August 1695: either William Evans II's apprentice or William Evans I's apprentice George Pritchard free.)

1696: a William "Evens" described as a pipemaker and living with wife *Martha* and children Isack (see EVANS, Isaac) and Vertue in King St, St Nicholas, in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 141).

10 May 1697: the William Evans husband of Mary Evans in 1693 and to whom William Morgan II had been apprenticed in that year (above) still alive, for Morgan was transferred to Devereaux Jones I (q.v.) on this date and it was noted the transfer was made with the consent of Morgan's master (i.e. Evans) and mother.

(20 July 1698: the Isaac Evans noted in 1696 (above) as son of the William Evans husband of Martha Evans free by patrimony.)

(3 November 1699: either William Evans II's apprentice or William Evans I's apprentice Nathaniel Stone free.)

It is unfortunately impossible on evidence available so far to separate the two William Evanses after William II becomes free 1667. For a discussion of the problems see EVANS, William I.

EVE, Charles (199)

fl 1832-39

1832-39 72 Redcliff St (*Matthews's Dir*.).

1837 ditto (*Robson's Dir.*).

FEVERS, Humphrey (200)

f1 1630/1

17 February 1630/1: he and wife Barbara took Henry Tovy apprentice.

FISHER, Thomas (201)

F 1812, f1 1812-32

2 October 1812: free having married Mary daughter of James Pearce of Bristol, basketmaker decd.

1812 Polls - Temple St, Temple; voted for Romilly.

1818 Polls - Avon St, Temple; voted for Davis and Baillie.

1820 Polls - Rose St, Temple; voted for Davis and Bright.

1825-32 70 Temple St (Matthews's Dir.); 1831 trade entry gives number as 79, presumably an error - general section gives 70.

1830 Polls - Temple St, Temple; voted for Davis and Baillie.

FISHPELL, Samuel (202)

A 1675, F 1682

23 April 1675: son of Thomas Fishpell late of Bristol, carpenter decd, apprenticed to Llewellin and Mary Evans for 8 yrs.

13 November 1682: free having been apprenticed to Llewellin Evans.

Free after only 7½ yrs' apprenticeship.

Brother, presumably older brother, of Thomas Fishpell (q.v.).

FISHPELL, Thomas (203)

A 1684, released 1685

19 September 1684: son of Thomas Fishpell of Bristol, carpenter [decd - see entry for Samuel Fishpell], apprenticed to William and Mary Kinton for 7 yrs.

1 March 1685: released by consent of himself, his master, and his mother, no benefit to be had and indentures cancelled.

Brother, presumably younger brother, of Samuel Fishpell (q.v.).

FLOWER, Ambrose (204)

A 1688

23 November 1688: son of William Flower late of the parish of St James [poss. the out-parish of St James, beyond Bristol to the NW - Ralph and Williams (eds) 1968: xxi], no occupation given, decd, apprenticed with the consent of the Overseers of the Poor of the parish to Isaac and Sarah Hale for 7 yrs.

FLOWER, James (205)

fl 1833

1833 Gt George St (Matthews's Dir.).

FLOWER, Thomas (206)

A 1703/4

10 January 1703/4: son of John Flower late of Bristol, cordwainer decd, apprenticed to Joseph I and Jane Stanford for 7 yrs.

FOORD, William (Ford) (207)

A 1723, F 1733, fl Bristol 1740/1, poss. left Bristol before 1748, fl London 1754

11 April 1723: son of Thomas Foord late of Wrington, Somerset, tailor decd, apprenticed to Edward and Mary Reed for 7 yrs; friends to find apparel.

3 May 1733: free having been apprenticed to Edward Reed.

6 July 1733: he and wife Mary took John White apprentice.

1734 Polls - St James; voted for Scrope and Elton.

22 May 1739: he and wife Mary took over Peter Quarman I apprentice from John Squibb and Nicholas Corner from Thomas Owen [either Thomas Owen II or Thomas Owen III] and wife Hannah.

1739 Polls - St James; voted for Combe.

9 January 1740/1: he and wife Mary took Isaac Battin apprentice.

Sometime before 17 October 1748 (see below) Isaac Battin had been turned over to Devereaux Jones II - this may indicate Foord had left Bristol for London sometime between 1740/1 and 1748 - Foord was certainly in London by 1754 (below).

(17 October 1748: Isaac Battin free having been apprenticed first to William Foord and then to Devereaux Jones II.)

(26 March 1754: his apprentice John White free.)

1754 Polls - LONDON; voted for Nugent.

FOOT, Richard (Foote) (208)

A 1675/6, F 1684, fl 1689

13 March 1675/6: son of William Foot of Barton Regis, Gloucestershire, "chirurgeon", apprenticed to William I and Margaret Williams for 7 yrs.

15 October 1684: free having been apprenticed to William Williams I.

29 December 1689: he and wife Mary took Henry Edwards apprentice.

(6 September 1699: his apprentice Henry Edwards free.)

FOSTER, William (209)

A 1653

25 April 1653: son of Thomas Foster of Bristol, glover, apprenticed to John I and Jane Hunt for 7 yrs and 1 covenant yr.

FOWLES, Richard (210)

F 1727

Apprenticeship record not found.

26 July 1727: free having been apprenticed to John Squibb.

FOX, James (same as John Fox?, surname also Foxe) (211)

prob. A 1639/40, F 1654, fl 1668/9, poss. fl 1696

20 January 1639/40:probably the John Fox son of Thomas Fox of Bristol, seaman, apprenticed to Richard and Anne Berryman for 8 yrs.

November 1651: recorded as an active pipemaker in the account of a protracted affray between himself and excise officials. On 5 November an excise officer and two "soldier's of the Governor's Company" tried to "take a distres" [i.e. an act of distraint - confiscation of property] against Fox "for his severall contempts." Fox attacked them with a knife and "most desparate oathes", swearing to kill the official, and in the affray stabbed his wife's hand. A constable on hand, pipemaker Philip Edwards I, made no effort to intervene, and when the excise officer escaped and returned with another constable Fox chased the officer "a great wayes in the street" through a great throng which had gathered. Next day (6 November) the Mayor decreed that Fox should be put in the stocks "for his bloudy oathes aforsaid", but next day again (7 November) when the same excise officer and two soldiers went to Fox's house he swore again to kill the officer and went at him with a "paire of prongs" in his hand (Nott and Ralph (eds) 1947: 68-9). The editors say (op. cit. 5-6) the officer and soldiers were from the pipemakers' company, but this is certainly not the case for the Bristol pipemakers' guild was not founded until the following September (1652) and the Westminster guild was not in existence at that time. Further, the account clearly says the officer was from the "Sub Commissioners for the Collectinge of the Excize of Tobacco pipes, by virtue of a commission to them granted in prosecucion of the same accordinge to the Acts, the ordinances of Parliament". (The account given in Nott and Ralph was a deposition by one of the two soldiers who had accompanied the excise officer on his unsuccessful visits to Fox; the account was dated 25 December 1651 and as the deponent observed, the whole business "hath bin a greate hindraunce, and trouble, to the aforesaid Commission".) The Fox affair is discussed in detail in 6: II(c)(5) and II (c)(6).

September 1652: founder-member of Bristol Pipemakers' Guild, though not free until 1654 (below) - guild's charter claimed all founding members were freemen or freemen's widows.

5 October 1654: free by order of Mayor and Commonalty.

9 October 1654: he and wife Jane took Llewellin Williams Bevan [probably Llewellin Evans - q.v.) apprentice.

(31 May 1661: his apprentice Llewellin Evans free.)

(8 November 1668: his apprentice William Hickes I free.)

2 March 1668/9: he and wife Jane took John Griffiths apprentice.

As noted in 6:VII(a)(2) pipes bearing a mark plausibly attributable to Fox (see below) are known which typologically should date to ca.1680s-90s. No definite references to Fox have been found later than the above one of 1668/9, but a James Fox - no occupation given - with a wife "Genett" [Janet] and daughter Elizabeth listed in 1696 in Cock Lane, St Nicholas (Ralph and Williams (eds) 1968: 149) could possibly be this James Fox.

No definitely attributable James Fox material is so far known from Bristol, which precludes certain identification of the mark shown (fig a) as his. However, the probability that it is in fact Fox's mark is based on its unusualness and on the occurrence of a similar motif at Bristol on products of Llewellin Evans (q.v. - fig b), who was an apprentice of Fox, and of at least one of the William Evanses (qq.v. - figs e and f), one of whom finished his apprenticeship with Robert Tippet I (q.v.) who was almost certainly using the same style of stem marking as the Evanses (fig t). Other less certainly identifiable Bristol makers appear to have used the same form of marking (6 : VII(a)(2)) but the style does not appear known from elsewhere. The mark attributed to Fox occurs in North America on sites of the second half of the C17, in some cases associated with Bristol pipe material of this period (Llewellin and the William

Evanses pipes, for example); and the only other maker so far known with these initials who might fit the dating is a John Fletcher of Chester F 1673 (Oswald 1960a: 70) though there is no evidence to connect the marking in question with Chester.

FOX, John - see FOX, James X

FRYER, John (212)

A 1713/4, F 1723, fl 1754

23 February 1713/4: son of John Fryer of Bristol, saltmaker, apprenticed to Philip Calloway I or II and wife Christian for 7 yrs; friends to find apparel.

7 August 1723: free having been apprenticed to Philip Calloway decd.

25 April 1726: he and wife Charity took James Stephens II apprentice (Stephens transferred 17 April 1732 to John Wickham "with consent of all parties").

1734 Polls - Temple; voted for Scrope and Elton.

(15 October 1739: James Stephens II free having been apprenticed initially to John Fryer.)

1739 Polls - Temple; voted for Combe.

(26 June 1747: son-in-law John Bateman (q.v.) free having married his daughter Elizabeth.)

1754 Polls - St James; voted for Nugent.

(23 April 1767: son-in-law Edward Babb (q.v.) free having married his daughter Ann.)

GALLOPP, William (213)

A 1690, F 1704

15 December 1690: son of Paul Gallopp of Wells, milliner, apprenticed to James Bull [probably James Bull II] and wife Mary for 7 yrs.

6 December 1704: free having been apprenticed to James Bull.

GANE, Aaron (214)

A 1711

4 April 1711: son of Solomon Gane of High Littleton, Somerset, coalminer, apprenticed to Philip I and Anne Calloway for 7 yrs; friends to find apparel.

GANE, John (215)

fl 1848-53

1848 15 Temple St (Hunt's *Bristol and Welch Towns Dir*.).

1850 ditto (Hunt's *Bristol Dir*.).

1852 ditto (*Slater's (late Pigot's) Dir*.).

1853 ditto (Scammell's *Gloucester, Bristol and South Wales Dir*.).

GARRATT, John (216)

F 1676/7

Apprenticeship record not found.

3 March 1676/7: free having been apprenticed to John Abbot.

GAY, George (sometimes confused with GUY, Philip - q.v.) (217)

fl 1832-63

1832-63 New St (Matthews's Dir.); is also listed as a carpenter throughout this period and from 1852 onward as an undertaker as well.

1837 ditto (Robson's Dir.).

1841 Polls - New St, St Philip and Jacob Out-parish; voted for Fripp and Berkeley.

1842 New St (Pigot's Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

The Gay family may have been living in New St from before 1800: a Gay and Son, carpenters and joiners, are noted there in 1798; a John Gay, carpenter and joiner, in 1800; and a William Gay, carpenter, in 1800 (all refs from Matthews's Dir.). Further, the court behind New St called Burge's Ct on the 1883 O.S. plan (FIG 174) is called Gay's Ct on Ashmead's plan of 1828 (FIG 168), suggesting the Gay family may have originally owned it (see also 6: VIII).

GEORGE, David (218)

fl 1829-36

1829-36 St Philip's Plain [modern Broad Plain] (Matthews's Dir.).

Perhaps not a member of the main George Bristol pipemaking family (see following entries and George family tree; also 6: VIII).

GEORGE, James I (219)

B ca.1787, fl 1821-58, D 1873

Born ca.1787 as age on death in 1873 given as 86 (BAO 13480(25)).

1821-22 Gt Ann St (Matthews's Dir.).
1823-24 9 Gt Ann St (ditto).
1825-32 11 Gt Ann St (ditto).
1833 not listed (ditto).
1832-37 11 Gt Ann St (ditto); 1834 in general section only.
1838-41 5 Gt Ann St (ditto).
1842-58 5 Gt George St - probably an error for Gt Ann St (cf other evidence below) (ditto).

1837 Gt Ann St, St Philip's (Robson's Dir.).

1841 Polls - Gt Ann St, St Philip and Jacob Out-parish; voted for Miles and Fripp.

1848 5 Gt Ann St (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.).

1852 Polls - Gt Ann St, St Philip and Jacob Out-parish; voted for Berkeley and Langton.

1853 5 Gt Ann St (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

ca.8 April 1873: died aet 86, a widower - buried at Arno's Vale cemetery (BAO 13480(25)).

Also described in BAO 13480(25) as "late of Orange St [St Paul's], pipemaker" (for C20 photographs of Orange St see Anonymous n.d. [23]: 4-5).

(A Cecelia George born in Bristol (aet 47 in 1861, so B 1813 or 1814) noted working in Bath in 1861 census - probably a journeywoman (Brown and Brown 1974: 28). If related other than by marriage to the main Bristol George pipemaking family she would have to be a daughter of James George I and an immediately younger sister of Thomas George II (q.v.), which latter relationship is biologically just possible (see family tree).

GEORGE, James II (220)

fl 1886-89

1886-89 Redcross St (Wright's Dir.).

Perhaps not a member of the main George Bristol pipemaking family (not the James son of James George I - see family tree - as this James had died 1871).

GEORGE, John (221)

fl 1870-71

1870-71 55 Gt George St (Matthews's Dir.); 1870 listed in general section only, 1871 classified entry gives number as 45.

Perhaps the son of James George I - see family tree - born ca.7 March 1819 and married February 1867.

GEORGE, Thomas I (222)

B ca.1765, F 1812, fl 1815-37 [sic], D 1835

Born ca.1765 on evidence of Ann St property deeds (BAO 13480(25)) - son James George I (q.v.) died 1873 aet 86 therefore born ca.1787, therefore parents married by them; Thomas I's wife Ann died 1847 aet 81 therefore born ca.1766, Thomas I probably born about same time and therefore ca. 65-70 when he died.

1 October 1812: free having married Ann daughter of John Okely of Bristol, pipemaker decd.

1815-19 Gt Ann St (Matthews's Dir.); listed in 1815 directory in late entries section, perhaps indicating his starting in independent business; 1819 entry lists him as "pipemakers", suggesting possible business association, perhaps with son James George I (q.v.).
1820 not listed (ditto).

1820 not listed (ditto).
1821-22 Gt Ann St (ditto).
1823-37 5 Gt Ann St (ditto).

7 September 1835: died (BAO 13480(25)).

According to Pritchard (1921: 190) the George family business - which lasted until 1921 - was founded in 1800.

Documentary refs (BAO 13480 passim) indicate Thomas George I bought his Gt Ann St property for £150 apparently by 1810 and that he seems to have been working in association with a Thomas Okely, presumably an in-law (a John George, excise officer, is noted on Gt Ann St in 1791 (The Universal British Dictionary), 1792 (New Bristol Dir.), and 1794 (Matthews's Dir.) suggesting the George family may have lived there towards the end of the C18).

1812 Polls - Ann [sic] St, St Philip and Jacob Out-parish; voted for Romilly.

1818 Polls - ditto; voted for Davis and Baillie.

1820 Polls - ditto; voted for Bright and Baillie.

13 July 1827: he and wife Ann took grandson Thomas George II apprentice.

1830 Polls - Ann [sic] St, St Philip and Jacob Out-parish; voted for Davis and Protheroe.

1832 Polls - ditto; voted for Protheroe and Williams.

1835 Polls - ditto; voted for Baillie and Hobhouse.

1852 Ann St (Slater's (late Pigot's) Dir.); must be a mistake for James George I (q.v.) his son.

According to a note by Thomas George IV on his September 1952 list of pipemakers remembered by or whose names were familiar to him and said to date to 1878 or 1880

> On the site where Old Market St Wesleyan Chapel stood, this Chapel was built in 1815 demolished about 1921, My Fathers Great Grandfather, ['great' has been added subsequently] helped Mr. John Carey, when pressed for time to catch the Ships going to the West coast of Africa.

Thomas IV's "father's great-grandfather" was Thomas George I (see family tree), and as John Carey (q.v.) was indeed working on Old Market St at one point - ca.1800 - and Bristol was developing a trade with West Africa at this time (6 : VII(b)(3)) it seems quite possible that Thomas George I had been a pipemaker journeyman before setting up on his own (see also 6: VI and VIII).

GEORGE, Thomas II (223)

B 1813, A 1827, fl 1859-(?)81, F 1875, D 1881

ca.25 January 1813: born, eldest son and third child of James George I (q.v.) - see family tree (BAO 13480(25)).

13 July 1827: son of James George I of Bristol, pipemaker, apprenticed to his grandfather Thomas George I for 7 yrs; master to find "everything".

1859-70 5 Gt Ann St (Matthews's Dir.); succeeds father James George at this address, presumably on latter's retirement as father did not die until 1873.
1871-73 5 Gt Ann St and 35 Gt George St (ditto); separate entries - 35 Gt George St apparently taken over from Thomas Roberts III (q.v.) and Thomas Gray (q.v.); probably Thomas George II (cf remarks below from Thomas George IV memories) continued first at Gt Ann St then (see entries below) at Holton St and New St.
1874-75 Holton St and 35 Gt George St (ditto).
1876-78 35 Gt George St (general section also lists Holton St) (ditto).

1879-81 22 New St (general section also lists 35 Gt George St) (Matthews's Dir. 1879, Wright's Dir. 1880-81).

1881: died (George family records).

1863 51 Gt Ann St (Kelly's P.O. Bristol Dir.).

1873: George family sold their Gt Ann St property to one Curry who in 1875 sold it to the Bristol City Mission (BAO 13480(26)); presumably the Georges sold it on death of James George I in 1873 (see 6: VIII).

11 August 1875: free having been "late apprentice" of Thomas George I decd.

A Thomas George sr is listed in New St and a Thomas George jr in Gt George St in both the 1878 or 1880 list of pipemakers compiled September 1952 by Thomas George IV and the undated list Thomas IV compiled 6 January 1953: presumably Thomas sr is Thomas II and Thomas jr is Thomas III (q.v.). This separation of the two Thomas Georges would explain the double entries and addresses noted above, Thomas George II presumably being the Thomas listed above at successively 5 Gt Ann St, Holton St, and 22 New St (a Mrs. George (q.v.) is listed at 22 New St 1882-83, perhaps Thomas II's widow).

Last Bristol pipemaker apprentice.

(A Cecelia George born in Bristol (aet 47 in 1861, so B 1813 or 1814) noted working in Bath in 1861 census - probably a journeywoman (Brown and Brown

1974:28). If related other than by marriage to the main Bristol George pipemaking family she would have to be a daughter of James George I (q.v.) and an immediately younger sister of Thomas George II, which latter relationship is biologically just possible (see family tree).

GEORGE, Thomas III (224)

B 1847, D 1935

1847: born (George family records).

Presumably the Thomas George jr listed in Gt George St in both the 1878 or 1880 list of pipemakers compiled September 1952 by Thomas George IV and the undated list Thomas IV compiled 6 January 1952 (cf entry for Thomas George II).

Presumably the Thomas George listed from 1871 at 35 Gt George St in a separate entry from the Thomas George recorded from this date until 1881 successively at 5 Gt Ann St, Holton St, and 22 New St, the latter presumably being the Thomas George sr noted by Thomas George IV and listed here as Thomas George II.

1871-73 35 Gt George St (Matthews's Dir. to 1879, Wright's Dir. from 1880).
1894-1909 38 Gt George St (Wright's Dir.) - same property numbering change).
1910-15 38 Gt Geroge St and 14 Old Market St (ditto).
1916-21 38 Gt George St (ditto).

12 December 1921: firm of Thomas George and Co closed (Anonymous 1921a; Pritchard 1923: 190).

1935: Thomas George III died (George family records).

1899-1903 38 Gt George St (Bristol and Dist. Trades' Dir.).
1904 ditto (New Bristol Dir.).

Last kiln-load of pipes fired by the firm 9 December 1921 in the presence of three generations of Georges - Thomas III, described as "aged 75, still hale and hearty notwithstanding the fact he has never had a holiday in his life", a son [presumably Thomas George IV], and a grandson [presumably Albert George son of Thomas IV, D 1958 or 1959 aet 58 - see family tree]. Kiln was to be emptied on 12 December and dismantled (Anonymous 1921a; Pritchard 1923: 190).

Thomas George III's wife was called Mary Ann (George family records).

GEORGE, Thomas IV (225)

B 1872, D 1968

1872: born (George family records).

1968: died (George family records).

Son of Thomas George III (see family tree); compiled two lists of Bristol pipemakers whom he either remembered or whose names were familiar to him in the second half of the C19 and on one also recorded the tradition that the first Thomas George (q.v.) had assisted John Carey in producing pipes at the beginning of the C19 for the west African trade. Mr George died before this writer could interview him, but his grandchildren provided some of his reminiscences, as well as much general material on the George family's history.

GEORGE, Mrs (226)

fl 1882-83

1882-83 22 New St, St Philip's (*Wright's Dir.*).

Occurs as an entry separate from that for Thomas George III (q.v.), who is recorded at this time at 35 Gt George St; perhaps the widow of Thomas George II (q.v.).

GETHLING, Mathew (Gethlin; first name also appears as Matthew) (227)

A 1715, F 1722

25 May 1715: son of Mathew Gethling late of Bristol, mariner decd, apprenticed to James and Katherine Abbott for 7 yrs; 40s paid with apprentice friends to find "*caligar'*".

16 June 1722: free having been apprenticed to James Abbott decd.

GIFFORD, Thomas (228)

A 1703

3 September 1703: son of John Gifford late of Bristol, coppersmith decd, apprenticed to Henry and Dorothy Edwards for 7 yrs.

GILL, Richard (229)

A 1717, F 1724, fl 1734

18 June 1717: son of William Gill of Bristol, whittawer, apprenticed to Philip Calloway [either Philip I or Philip II] and wife Alice for 7 yrs; £10 paid with apprentice the gift of Edward Colston Esq. charity money.

19 June 1724: free having been apprenticed to Philip Calloway.

1734 Polls - St Michael; voted for Scrope and Elton.

There appears to be no proof of Oswald's suggestion (1970b: 238) that Gill could have been related to the Gill family of potters and pipemakers at Potovens and Wakefield 1600-1800 or to others of that name in London 1661 and Exeter 1846-56.

GODWIN, George (230)

A 1795

5 July 1795: son of Thomas Godwin of Bristol, wireworker, apprenticed to John Okely II, tobacco-pipe manufacturer and wife Martha for 7 yrs; 40s paid with apprentice the gift of Ald. Kitchen decd, friends to find apparel and washing.

GOLDING, Elon (first name also appears as "T.") (231)

fl 1848-63

1848 3 New St, Old Market St (Hunt's Bristol and Welch Towns Dir.).

1850 3 New St (Hunt's Bristol Dir.).
1851-63 ditto (Matthews's Dir.).

1852 3 New St (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

1863 ditto (Kelly's P.O. Bristol Dir.).

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953. The latter list gives Golding's initial as T.

GRANT, John (232)

F 1736

3 May 1736: free having married Jane daughter of Samuel Packer of Bristol, hooper decd.

GRANT, Thomas (233)

fl 1748/9, D by 1751

Freedom record not found.

27 January 1748/9: he and wife Elizabeth took over Israel Carey II from James and Susannah Carter.

Dead by 15(?) April 1751 when Israel Carey II transferred to George and Elizabeth Ebbery.

(29 March 1754: his apprentice Samuel Tuckey free.)

(19 February 1756: Israel Carey II free having been apprenticed first to James Carter, then to Thomas Grant, then to George Ebbery.)

Grant must have been working as a pipemaker at least by the 1740s on the evidence of having taken Tuckey apprentice at least 7 yrs before 1754 when Tuckey became free (Tuckey's apprenticeship record not found) and taking over Carey 1748/9. A Thomas Grant took his freedom 21 May 1744 by virtue of having married *Elizabeth* daughter of John Hodges of Bristol decd but Grant described at this time as a yeoman.

Grant may have been a member of the C17 family of pipemakers of this name originally from Westbury-on-Trym, a community now well within the northern limits of the city of Bristol but then some 2½ miles NNW of the city limits and well into the country. The earliest pipemaker known in this family is Thomas Grant (fl 1656, buried at Westbury 28 October 1694), who is recorded at Westbury until 1664 but then appears to have left, though baptisms and burials there of the family continued, presumably because of family ties and suggesting the family did not move any great distance. There is a Poor Book reference in 1686 to Thomas Grant "of Westbury pipe maker" receiving a payment for taking Martha Andrewes apprentice (presumably as a maid) which also suggests Grant had not moved far, and Bristol would have been the obvious place for him to have moved to, with the pipemaking industry there expanding rapidly during the second half of the C17 (see vol B chap 6 *passim*). Thomas Grant had four sons, the eldest, Thomas jr (baptized 8 January 1655/6), being apprenticed a pipemaker but dying in 1676 (buried 1 August) and the youngest, Roger (baptized 1 November 1664) becoming a pipemaker. Roger Grant's marriage licence bond for his marriage to Ann Sanders, a widow, is dated 7 April 1694 (Hollis and Ralph (eds) 1952: 252); the marriage took place the following day, but Grant died very shortly afterwards, being buried 21 September the same year. His widow had a posthumous daughter, Hannah (baptized 2(?) February 1694/5). Thomas Grant's two middle sons were William (baptized 30 March 1657) and John (baptized 15(?) January 1659/60: the occupation of neither is known, but John had three sons and a daughter and the youngest son, Thomas (apparently a twin of the daughter Mary, as both were baptized - at Westbury - 25 August 1712), could be the Bristol pipemaker Thomas Grant noted here, though his occupation is not known from the Westbury records. Thomas's two elder brothers were William (baptized 2 February 1685/6, married Sarah Brown 29 May 1712) and John jr (baptized 16 September 1687), who had a son William (baptized 13 December 1609) and a daughter Mary (baptized 27 July 1712). (The Bristol and Westbury Grants are very briefly discussed in I. Walker 1974: 139-40; the additional details given here on the Westbury Grants were supplied by John Bryant of Bristol via Roger Price of the Bristol City Museum - *in litt.* 3 October 1974 - following the publication of the above article, and I am extremely grateful to both of them for their help.)

GRAY, John (234)

A 1690, F 1700, fl 1722

20 May 1690: son of John Gray late of Bristol, hallier decd, apprenticed to John and Susannah Lewis for 7 yrs.

10 April 1700: free having been apprenticed to John Lewis.

1715 Polls - St John.

1722 Polls - St James; voted for Hart.

GRAY, Thomas (235)

fl 1870

1870 35 Gt George St (Matthews's Dir. - general section only).

Possibly associated with Thomas Roberts III (q.v.) recorded at this address 1866-70; 1871 onwards this address occupied by George family (see entries under GEORGE, Thomas II).

GRIFFIN, John (Griffen) (236)

A 1668/9, F by 1684, fl 1690

2 March 1668/9: son of Griffen George of St (?)Tagmans, Pembrokeshire, weaver, apprenticed to James and Jane Fox.

Freedom record not found.

3 September 1684: he and wife Bridgett took John Ricketts apprentice.

11 December 1690: he and wife Bridgett took Nathaniel Moss apprentice.

(22 January 1706/7: his apprentice John Ricketts free.)

GRIGG, Thomas (237)

A 1630/1

14 February 1630/1: son of James Grigg of Bristol, shoemaker, apprenticed to John and Jane Wall for 7 yrs.

GUY, Philip (sometimes confused with GAY, George - q.v.) (238)

A 1812, F 1838, fl 1850-61

20 April 1812: son of John Guy of Bristol, labourer, apprenticed to William and Amelia "Okeley" [sic] for 7 yrs; friends to find apparel.

14 August 1838: free having been "late apprentice" of William Okely.

1850-60 partner in form of Sanders [sic - Saunders] and Guy (q.v. SAUNDERS, James) at 10 Gt Ann St (Matthews's Dir.) - succeeds James Down (q.v.) in the partnership, name sometimes given as Gay.

1861 listed alone as P. Guy at 10 Gt Ann St (ditto).

1852 Philip Guy listed alone on Ann [sic] St (Slater's (late Pigot's)Dir.) - Saunders may have died sometime after 1841 as he would have been nearly 100 had he indeed been alive in 1860, suggesting the Matthews's directory entries continued Saunders's name in the business after he had died.

HAINES, John - see HANE, John X

HAINES - see HAYNES X

HAINES, William (239)

A 1657

26 November 1657: son of John Haines of Brockworth, Gloucestershire, cooper, apprenticed to Thomas and Elizabeth Cullimore for 7 yrs.

HALE, Isaac (240)

A 1679, F 1688

29 December 1679: son of Thomas Hale of Farrington, Somerset, smith decd, apprenticed to Edward I and Rachel Randall for 7 yrs.

28 June 1688: free having been apprenticed to Edward Randall I.

23 November 1688: he and wife Sarah took Ambrose Flower apprentice.

(2 May 1715: son Edward apprenticed to Thomas Page, house painter, and wife Anne; £15 was paid with apprentice. 30 May 1719 Edward Hale transferred to John and Mary Brock because Page was dead.)

HANE, John (Haines) (241)

A 1722, F 1739, fl 1754

1 May 1722: son of Thomas Hane late of Bristol, tiler and plasterer decd, apprenticed to Henry and Anne Hoar for 7 yrs; £8 paid with apprentice *ex publico dono*.

8 October 1739: free having been apprenticed to Henry Hoar.

1754 Polls - St James; voted for Nugent.

HANCOCK, Robert (242)

A 1640/1, fl 1652, F 1655

8 February 1640/1: son of Thomas Hancock of Bristol, glover, apprenticed to William and Joan Cooper for 7 yrs.

September 1652: founder-member of Bristol Pipemakers' Guild, though not free until 1655 (below) - guild's charter claimed all founding members were freemen or widows of freemen.

25 September 1655: free because son of ["apprentice" stroked out] Thomas Hancock of Bristol [occupation not given in freedom entry but on evidence of apprenticeship rolls Hancock sr was a glover].

HARDWICK, Walter (243)

fl 1734

1734 Polls - St Philip and Jacob; voted for Coster.

HARE, Richard (244)

A 1710

23 November 1710: son Richard Hare late of South Brent, Somerset, carpenter decd, apprenticed to John and Mary Wilson for 7 yrs.

HARRIS, John I (245)

D by 1641

Dead by 13 April 1641 when widow Sarah (see HARRIS, Sarah) took Thomas Cullimore apprentice to educate him "in arte de le tobaccopipemakers"; John Harris presumably a pipemaker but no other references to him known.

HARRIS, John II (246)

A 1722, F 1729, fl 1754, D by 1781

11 May 1722: son of Thomas Harris late of Bristol, porter decd, apprenticed to Anthony I and Hester Baily for 7 yrs; friends to find apparel 40s paid with apprentice ex publico dono.

12 May 1729: free having been apprenticed to Anthony Baily I.

1739 Polls - Temple; voted for Southwell.

1754 Polls - ditto; voted for Nugent.

Dead by 22 February 1781 when son Samuel Harris II (q.v.) free.

Brother, presumably elder brother, of Samuel Harris I (q.v.); Samuel I's discharge notice indicates his mother's name was Elizabeth - she may also have been John II's mother.

HARRIS, Samuel I (247)

A 1731, released 1736

30 September 1731: son of Thomas Harris late of Bristol, porter decd, apprenticed to George and Elizabeth Ebbery for 7 yrs.

25 November 1736: note of this date to the above entry that Harris had been discharged by order of the Tolzey.

Tolzey Book entry indicates a mutual agreement between Harris's master and himself and his friends that he be "entirely discharged" and that he have "no right or benefit of the freedom of this City by means of his being bound as aforesaid". Ebbery and Harris both sign with rather crabbed hands. Harris's mother's name given in Tolzey Book entry as Elizabeth (she signs with a cross).

Samuel Harris I a brother, presumably a younger brother of John Harris II (q.v.).

HARRIS, Samuel II (248)

F 1781 when in London

22 February 1781: free because son of John Harris of Bristol, pipemaker decd.

1781 Polls - Petticoat Lane, Whitechapel, LONDON; voted for Cruger.

HARRIS, Sarah (249)

fl 1641

Widow of John Harris I (q.v.); husband dead by 13 April 1656 when she took Thomas Cullimore apprentice to educate him "in arte de le tobacco-pipemakers".

(22 April 1656: her apprentice Thomas Cullimore free.)

HARVEY, John I (Harvy) (250)

A 1698, F 1705/6, fl 1739

15 November 1698: son of Henry Harvey late of Bristol, cordwainer decd, apprenticed to Thomas I and Mary Owen for 7 yrs.

4 January 1705/6: free having apprenticed to Thomas Owen I.

18 January 1705/6: he and wife Margaret took Ezekiel Millard apprentice.

10 December 1713: Ezekiel Millard free having served part of his apprenticeship under Harvey.

1715 Polls - St James.

1722 Polls - ditto; voted for Hart.

1734 Polls - either this John Harvey or John Harvey II (q.v.) in St James (probably John I); voted for Elton and Coster.

1739 Polls - one John Harvey (probably John I) in St James, other John Harvey LONDON; both voted for Southwell.

HARVEY, John II (251)

F 1725/6, fl 1739 probably in London

7 February 1725/6: free because son of Thomas Harvey of Bristol, pipemaker.

1734 Polls - either this John Harvey or John Harvey I (q.v.) in St James (probably John I); voted for Elton and Coster.

1739 Polls - one John Harvey (probably John II) in LONDON, other John Harvey in St James; both voted for Southwell.

HARVEY, Thomas (252)

A 1690, F 1700, D between May and October 1734

21 July 1690: son of Thomas Harvey of Bristol, porter, apprenticed to "tobaccopipemaker" and wife Susannah [sic - master's name not given but freedom roll entry indicates master was John Lewis and other evidence agrees his wife's name was Susannah].

25 March 1700: free having been apprenticed to John Lewis.

(1 October 1707: apprentice John Wilson free - Wilson's apprenticeship record not found but presumably must have been taken apprentice summer 1700.)

25 October 1707: he and wife Anne took John Albright apprentice.

20 November 1717: he and wife Anne took Francis Payton apprentice.

1722 Polls - St James; voted for Earl and Elton.

(7 February 1725/6: his son John Harvey II (q.v.) free.)

(26 July 1727: his apprentice John Albright free.)

24 June 1728: he and wife Sarah took Joseph Coules apprentice.

1734 Polls - St James; election held in May; voted for Scrope and Elton.

Both he and wife Sarah dead by 12 October 1734 when Joseph Coules his apprentice (above) transferred to William and Mary Nicholas because he had been "left destitute of Instruction and Maintenance" by their death (see COULES, Joseph).

(3 May 1737: Joseph Coules free having been apprenticed first to Harvey and then to William Nicholas.)

(4 April 1754: his apprentice Francis Payton free.)

HASKINS, John (253)

A 1656

21 April 1656: son of Robert Haskins of Bristol, clothworker, apprenticed to Thomas Monkes, pewterer, and wife Julian [sic] for 7 yrs, plus 1 covenant yr for which he is to have a new suit and a cloak, to be educated in the art of a tobacco-pipe maker.

HASSELL, John (Hassel) (254)

A 1731/2, F 1739, fl 1774

21 March 1731/2: son of John Hassell late of Bristol, shipwright decd, apprenticed to James and Mary Jenkins for 7 yrs; friends to find apparel, £5 5s paid with apprentice.

1 October 1739: free having been apprenticed to James Jenkins.

1739 Polls - St Thomas; voted for Southwell.

1774 Polls - St Michael; voted for Cruger and Burke.

HAWLEY AND SON; becomes HAWLEY AND CO, then HAWLEY BROS (255)

fl 1884-1901

1884-92 Temple Back (as Hawley and Son) (Wright's Dir.) - appears in streets section only, trades section still lists Richard Charles Ring and Co (q.v.). May have taken over Ring's pipemaking business (see below).
1893-98 ditto (as Hawley and Co) (ditto).
1899-1901 ditto (as Hawley Bros) (ditto).

1899-1901 ditto (as Hawley and Co) (Bristol and District Trades' Dir.).

Oswald (in litt. 5 May 1968) notes a pipe marked "Hawley and Son" at Bradford City Museum and Art Gallery in Yorkshire; Coleman-Smith and Pearson (1971: 6) note one marked "Hawley and Sons" from excavations at Donyatt in south Somerset.

J.G. Hawley first appears in 1875 when he takes over the redware manufactory of William Hutchins (who moves elsewhere) at Temple Back; the Hawley firm's entry into pipemaking coincides with the closing of the Ring pipemaking form (cf above, see also RING, Richard Charles and Co), the former possibly taking over the latter.

HAYNES - see also HAINES X

HAYNES, - (256)

fl 1809-12

Otherwise unidentified partner of James Sheffield (q.v.) in the business of Sheffield and Haynes (q.v.) recorded at 2 Merchant St between the above dates (Matthews's Dir.). Perhaps related to the Grace Haynes (q.v.) fl 1828-29.

HAYNES, Grace (257)

fl 1828-29

1828-29 Pipe Lane, Gt Gardens [Temple] (FIG 196; Matthews's Dir.).

Perhaps related to the Haynes (no first name given) of Haynes and Sheffield (q.v.) fl 1809-12.

HAYNES, Henry (258)

fl 1734

1734 Polls - St James; voted for Coster.

HAYNES, William (259)

fl 1722

According to Oswald (1960a: 77) listed in 1722 Polls; not found by this writer.

HEANE, Solomon (Heme) (260)

A 1707, F 1727, fl 1739

24 November 1707: son of Thomas Heane of Bristol, tiler, apprenticed to Susannah widow of John Lewis, for 7 yrs.

26 July 1727: free having been apprenticed to Susannah widow of John Lewis.

1734 Polls - St James; voted for Coster.

1739 Polls - ditto; voted for Combe.

According to Oswald (1960a: 76), who gives the name as Hearne and the freedom date as 1728, Heane appears in the Hampshire Marriage Licences in 1728, but this reference has not been confirmed.

HELMES, Samuel (261)

fl 1722

1722 Polls - St Mary Redcliff; voted for Earl and Elton.

HEMSLEY, Richard (262)

A 1720

19 September 1720: son of Thomas Hemsley of Bristol, cordwainer, apprenticed to Robert Tippet [either Robert II or Robert III] and wife Mary for 7 yrs; friends to find apparel.

HENANT - see HENNANT X

HENLEY, J.T. (263)

fl 1856-58

1856-58 Gt Ann St (*Matthews's Dir*.).

HENNANT, John (264)

A 1684

15 July 1684: son of Thomas Hennant of Bristol, pipemaker, apprenticed to John I and Cicily Tucker for 7 yrs.

HENNANT, Thomas (Henning, Hennin, Henant) (265)

A 1647, F 1654, fl 1656, D by 1685?

14 July 1647: son of William Hennin [sic] of Bristol, tiler, apprenticed to John and Jane Wall for 7 yrs.

23 September 1654: free having been apprenticed to Thomas [sic - John is meant] Wall; name given here as Henning.

19 May 1656: he and wife Rachel [surname given ans Henant] took William Henant apprentice.

15 July 1685: his son John [surname given as Hennant] apprenticed to John and Cicily Tucker; this possibly indicates Thomas Hennant was dead by this date.

HEN[N]ANT, William (266)

A 1656

19 May 1656: son of William Hen[n]ant late of Bristol, labourer decd, apprenticed to Thomas and Rachel Hen[n]ant for 7 yrs.

HENNIN(G), Thomas - see HENNANT, Thomas X

HERCULES, John (267)

A 1734, alive 1735

24 April 1734: son of William Hercules of Bristol, cordwainer, apprenticed to John and Sarah Jones for 7 yrs; friends to find apparel.

31 May 1735: turned over to James and Mary Jenkins for remainder of term by order of the Tolzey, Jones "being gone off".

Tolzey Book entry indicates that Jones "hath failed in his Circumstances & absconds for fear of being Arrested", leaving Hercules "destitute of both Instruction and Maintenance"; but before absconding Jones had agreed in a signed document to discharge Hercules of all obligations, so apprentice and friends had asked for a transfer. The Jenkinses were to take over Hercules under the same terms as his original indentures. (Jones's signed release of Hercules appended; signed by Jones in a poor hand and dated 22 May 1735.)

HICKES, Charles (Hicks) (268)

A 1714, F 1721/2, fl 1740, D by 1747?

27 October 1714: son of Jonatham [sic] Hickes of Timsbury, Somerset, carpenter, apprenticed to Richard I and Rebecca Carter for 7 yrs; friends to find apparel.

14 February 1721/2: free having been apprenticed to Richard Carter I.

1722 Polls - St Leonard; voted for Hart.

6 November 1723: he and wife Mary took John Tippet II apprentice.

28 June 1731: he and wife Mary took Anthony Quinton apprentice (Quinton released by mutual agreement 18 June 1733; Hickes signs Tolzey Book with a reasonable if thick signature).

1734 Polls - St Nicholas; voted for Coster.

(14 February 1734/5: his apprentice John Tippet II free.)

21 April 1740: he [no wife mentioned] took George Viner apprentice.

22 April 1747: his apprentice George Viner free, at which time it is noted Biner had latterly been apprenticed to Geroge Ebbery - no record of Viner's transfer found; this possibly indicates Hickes was dead by this time.

HICKES, Richard (269)

A 1694, alive 1696

1 September 1694: son of William Hickes of Bristol, pipemaker, apprenticed to William and Mary Kinton for 7 yrs.

1696: noted as a "servant" with the Kintons in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968:52).

HICKES, Thomas - see HICKES, William I X

HICKES, William I (Hix) (270)

F 1668, fl 1715

Apprenticeship record not found.

8 November 1668: free having been apprenticed to James Fox.

4 January 1682/3: he and wife Anne took son William Hickes II apprentice.

9 April 1689: presumably the "Thomas" Hickes with wife Anne who took Benjamin Cole apprentice.

(1 September 1694: his son Richard Hickes (q.v.) apprenticed to William Kinton, pipemaker, and wife Mary.)

(9 March 1699/1700: his son and apprentice William Hickes II free.)

1715 Polls - St Augustine.

HICKES, William II (271)

A 1682/3, F 1699/1700, fl 1734

4 January 1682/3: son of William Hickes I of Bristol, pipemaker, apprenticed to father and wife Anne for 7 yrs.

9 March 1699/1700: free having been apprenticed to father William Hickes I.

1715 Polls - St Augustine.

1722 Polls - St James; voted for Hart.

1734 Polls - ditto; voted for Coster.

HILL, Edward (272)

fl 1850-76

1850 Wade St (Hunt's Bristol Dir.).

1852-62 15 Wade St (Matthews's Dir.).
1863-76 27 Wade St (ditto) - probably a street numbering change from the above entry.

1852 Wade St (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

1863 27 Wade St (Kelly's P.O. Bristol Dir.).

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953.

Also listed 1852-76 as a chimney-sweep; an E. Hill, chimney-sweep, appears at 7 Wellington Rd (on the opposite side of the Frome from St Jude's) for the year 1877 only, possibly the same person.

According to Oswald (1960a: 73) Hill is listed in an 1868 poll-book, but though there were two contested elections in Bristol that year no poll-book is known to exist for either.

HILL, Thomas (273)

F 1683

Apprenticeship record not found.

17 September 1683: free having been apprenticed to John Tucker I.

HILLMAN, George (274)

A 1650

18 September 1650: son of George Hillman of Buckley, Somerset, weaver, apprenticed to Robert I and Suzanne Powell for a third of (*pro tercio*) 7 yrs.

HISCOX, Thomas (275)

A 1687, F 1699/1700

11 May 1687: son of Thomas Hiscox late of Bristol, merchant tailor decd, apprenticed to John I and Cicily Tucker for 7 yrs.

9 March 1699/1700: free having been apprenticed to John Tucker.

HIVES, Henry I (Hiles) (276)

A 1706, F 1715/6, fl 1739

3 December 1706: son of John Hives of Bristol, tobacco-roller, apprenticed to Sarah widow of Robert Browning I for 7 yrs; friends to find apparel (except shoes and stockings).

3 December 1706: free having been apprenticed first to Sarah Browning and then to Thomas Watts (no record of transfer to Watts found).

1722 Polls - St James; voted for Hart.

1739 Polls - ditto; listed with son Henry Hives II, one voted for Combe, the other for Southwell.

His father John Hives does not appear in Tyack's list of C17 Bristol tobacco-roller freemen (Tyack 1935b: 198).

HIVES, Henry II (277)

F 1739

8 November 1739: free because son of Henry Hives I of Bristol, pipemaker.

1739 Polls - St James; listed with father Henry Hives I, one voted for Combe, the other for Southwell.

HIX, William - see HICKES, William I X

HOAR, Henry (Hoare, Hore, Hole, Rear) (278)

A 1688, F 1699, fl 1723, D by 1739

14 May 1688: presumably the Henry Rear [sic] son of Henry Rear of Dalwood, Devon, farmer, apprenticed to Robert and Sarah Tippet for 7 yrs.

1696: noted with Robert Tippet II household in Lewin's Mead, St James, in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 54).

22 July 1699: free having been apprenticed to Robert Tippett II.

1715 Polls - St James.

20 September 1716: he and wife Anne took Thomas Owen III apprentice.

17 December 1717: he and wife Anne took over James Roach as apprentice from Thomas and Sarah Edwards.

1722 Polls - St James; voted for Earl and Elton.

1 May 1722: he and wife Anne took John Hane apprentice.

21 October 1723: he and wife Anne took John Tidcomb apprentice.

(25 July 1727: his apprentice Thomas Owen III free.

(31 July 1727: his apprentice James Roach free having been originally apprenticed to Thomas Edwards.)

(8 October 1739: his apprentice John Hane free.)

Dead by 2 November 1739 when apprentice John Tidcomb free.

The probability that the Henry "Rear" apprenticed 1688 is the Henry Hoar free 1699 is based principally on the similarities between a capital R and a capital H and between o and e in C17 handwriting; as noted earlier (see under BOWERY, Stephen) the apprentice rolls may have been made up from time to time from rough entries on pieces of paper. The lack of any apprenticeship entry under the name Hoar, the lack (less decisively) of a freedom entry under the name Rear, the fact that the same master is involved, and the reasonable agreement of the relevant dates all tend to support the identification, however.

HOCKADAY, John (279)

A 1692, released 1693

15 September 1692: son of John Hockaday of Portbury, Somerset, pipemaker, apprenticed to Edmond and Christian Sinderling for 7 yrs.

1 October 1693: discharged with the consent of himself and his father, no benefit to be had from the part of apprenticeship served.

HODGE, Robert (280)

A 1690

4 July 1690: son of George Hodge late of Bristol, blacksmith decd, apprenticed to Elizabeth widow of Llewellin Evans for 7 yrs.

HOLBIN, William (281)

A 1651/2

4 February 1651/2: son of John Holbin of Bitton, Gloucestershire, innholder, apprenticed to Thomas I and Anne Smith for 7 yrs.

HOLBORROW, Holliday (282)

A 1693, alive 1694

23 August 1693: son of John Holborrow [occupation and place of work not given] apprenticed to Richard Hunt and wife [no name given] for 7 yrs.

27 October 1694: turned over to John Hunt [either John Hunt II or John Hunt III] his master being dead.

HOLE, Henry - see HOAR, Henry X

HOLLOWAY, H.J. AND CO; previously BLACKMORE, HOLLOWAY AND CO, and priot to that BLACKMORE, R.W. (q.v.) (283)

fl 1903-04

1903-04 14 Lamb St (Wright's Dir.), as Holloway and Co.

1903 14 Lamb St (Bristol and District Trades' Dir.), as H.J. Holloway and Co.
1904 14-15 Lamb St (The New Bristol Dir.), as J.H. Holloway and Co.

Last of a line of pipemakers at this premises stretching back practically unbroken for 90 years (for previous occupants see 6: VI).

HOLSTEAD, John I (Hollsteed, Holsteed, Holsted; first name thrice as James) (284)

A 1655/6, F 1662/3, fl 1683, D by 1689

27 February 1655/6: son of the late James Holstead of Bristol, seaman, apprenticed to John and Jane Abbot for 7 yrs.

11 March 1662/3: free having been apprenticed to John Abbot.

25 June 1683: he [referred to as James] and wife Margaret took Joseph Stanford I apprentice.

Dead by 6 November 1689 when widow Margaret (see HOLSTEAD, Margaret) took John Pearce I apprentice, decd husband referred to as James.

(7 September 1691: his apprentice Joseph Stanford I free.)

(21 October 1691: his son John Holstead II free; father, whose first name is given as James, noted as "late of this city".)

HOLSTEAD, John II (Holsteade, Holsteed, Holsted, Hollisteed) (285)

F 1691, fl 1696

21 October 1691: free because son of James [sic - John I is meant] Holstead "late of this city", pipemaker.

31 October 1691: he and wife [no name given] took John Macey I apprentice.

1696: he and wife Mary and apprentice John Macey noted in Temple in list of Bristol inhabitants (Ralph and Williams (eds) 1968:236).

HOLSTEAD, Margaret (Holsteed) (286)

M by 1683, widowed bet. 1683 and 1689

6 November 1689: as widow of John Holstead I took John Pearce I apprentice.

(13 November 1696: her apprentice John Pearce I free.)

HOPKINS, Walter (287)

A 1642

23 June 1642: son of Philip Hopkins of Callecott, Monmouthshire, farmer,

apprenticed to William and Joan Cooper for 7 yrs.

HORLEY, John (288)

A 1756

6 November 1756: son of Robert Horley late of Bristol, labourer decd, apprenticed to George and Anna Viner for 7 yrs; friends to find washing and mending.

HORRED, Henry (289)

A 1694

29 November 1694: son of Thomas Horred late of Pucklechurch, Gloucestershire, cook decd, apprenticed to James and Jane Abbott for 7 yrs.

HORSMAN, Charles (290)

A 1685

21 October 1685: son of Charles Horsman of Bristol, cooper, apprenticed to John I and Susannah Lewis for 7 yrs.

HOUSE, John (291)

A 1732

1 July 1732: son of John House of Bristol, weaver, apprenticed to Maurice and Elizabeth Phillips for 7 yrs; friends to find apparel, 40s paid with apprentice ex dono Ald. Kitchen.

HUDDEN AND CO LTD (292)

f1 1902

1902 Thomas St, Redcliff (Bristol and District Trades' Dir.).

HUETT, Richard (293)

A 1691

4 May 1691: son of Philip Huett late of Bristol, blacksmith decd, apprenticed with the consent of the Guardians of the Parish Church and of the Poor of the Parish to Richard and Anne Nunney for 7 yrs.

HUGHES, Thomas (294)

A 1685

2 September 1685: son of Thomas Hughes of Bristol, mariner, apprenticed to Francis and Elienor Edwards for 7 yrs.

HUISH, James (295)

A bet. 1756 and 1768, F 1781, fl 1820

Apprenticeship record not found.

6 February 1781: free having been apprenticed to William Commons decd.

1781 Polls - ASHWICK, SOMERSET; voted for Daubeny.

1784 Polls - Temple; voted for Brickdale and Daubeny.

1812 Polls - Lower Gravel St, St James; voted for Romilly and Hunt.

1818 Polls - Grenville [sic - Gravel] St, St James' voted for Davis and Baillie.

1820 Polls - ditto' voted for Davis and Bright.

Must have been apprenticed between 12 May 1756 when master William Commons free and 24 February 1768 when Commons referred to as dead.

HUNT, Christian (296)

M by 1653, widowed between 1670 and 1672, fl 1685/6

Married by 5 December 1653 when she and husband Flower Hunt took John Sinderling apprentice.

Widowed between 29 September 1670 when she and Flower Hunt took John Whitcacre (sp?) apprentice and 8 April 1672 when she took her son Thomas Hunt apprentice and she is referred to as a widow.

22 September 1677: took her son Richard Hunt apprentice.

6 March 1685/6: took her son John Hunt III apprentice.

(son Richard Hunt free by 23 August 1693 because recorded taking Holliday Holborrow apprentice on that date, but Richard's freedom record not found.)

(22 December 1689: her son and apprentice John Hunt II free, though apprenticeship entry not found.)

(11 October 1694: her son and apprentice John Hunt III free, though described in entry as apprentice of his father Flower Hunt.)

HUNT, Edward (297)

A 1757

24 March 1757: son of Edward Hunt of Bristol, weaver, apprenticed to George and Anna Viner for 7 yrs; £5 paid with apprentice the gift of Mr Percy decd to the poor of St Philip and Jacob parish, Gloucestershire [i.e. the out-parish of St Philip and Jacob].

HUNT, Flower (298)

F 1651, fl 1670, D by 1672

23 May 1651: free by express order of the Mayor and Aldermen with a fine of £5 on condition that he take as apprentices and foreman only those who are Bristol freemen or freemen's sons.

September 1652: founder-member of Bristol Pipemakers' Guild.

5 December 1653: he and wife Christian took John Sinderling apprentice.

8 September 1657: he and wife Christian took over James Bull I apprentice from Thomas I and Elizabeth Poyte [apprentice roll entry gives Powell for Poyte; James Bull I came from Wells in north Somerset, indicating an apparent breach of the conditions under which Flower Hunt promised to take apprentices unless the taking over of an apprentice attached earlier to a Bristol maker was exempted from these conditions].

1 September 1660: he and wife Christian took Robert Sheppard apprentice.

(13 November 1665: his apprentice James Bull I free having been first apprenticed to Thomas Poyte I.)

10 April 1667: probably the "Francis [?]" Hunt of "Castle" [presumably Castle Precincts] bondsman in marriage licence for Richard Cottle of Norton, Somerset, yeoman, and Martha Shute of Hinton, Somerset; at St Mark's alias le Gaunts (Hollis and Ralph (eds) 1952: 53).

17 April 1668: he and wife Christian took Thomas Sankey apprentice.

(7 May 1668: Edward Randall I free having been apprenticed first to Alexander Cherrington I and "served out his time" with Flower Hunt.)

(5 August 1668: his apprentice John Sinderling free.)

(8 October 1669: his apprentice Robert Sheppard free.)

29 September 1670: he and wife Christian took John Whitcacre (sp?) apprentice [Whitcacre from Chilcompton in north Somerset in breach of the conditions under which Flower Hunt promised to take apprentices].

Dead by 18 April when widow Christian Hunt (q.v.) took son Thomas Hunt (q.v.) apprentice.

(5 February 1680/1: his apprentice Richard Wingrove free.)

(Widow Christian took other apprentices 1677 and 1685/6.)

A possible south Wiltshire origin for Flower Hunt on the basis of his pipe forms is discussed in 6: VII(a((2).

HUNT, Francis? - see HUNT, Flower X

HUNT, George Edward (299)

fl 1857-62

1857-62 5 Phippen St (Matthews's Dir.).

Successor to Joseph Pearce (q.v.), succeeded by Edwin C. Osborne and Catherine Osborne (qq.v.).

Phippen St planned 1840 and built 1842 (Latimer 1887: 250, 258).

HUNT, John I (300)

F 1651, fl 1653

23 May 1651: free by express order of the Mayor and Aldermen with a fine of £5.

September 1652: founder-member of Bristol Pipemakers' Guild.

25 April 1653: he and wife Jane took William Foster apprentice.

A possible south Wiltshire origin for John Hunt I on the basis of his pipe forms is discussed in 6: VII(a)(2).

HUNT, John II (301)

F 1689, either this John Hunt or John Hunt III fl 1715, poss. fl 1716/7

Apprenticeship record not found.

22 December 1689: free having been apprenticed to his mother Christian Hunt [not the John Hunt apprenticed to Christian Hunt 6 March 1685/6, who

is presumably John Hunt III, because the John Hunt apprenticed 1685/6 would only have served 3¾ yrs of his apprenticeship by December 1689].

27 October 1694: either he or brother John Hunt III [no wife mentioned] took over Holliday Holborrow apprentice from their deceased brother Richard Hunt.

1696: a John and Mary Hunt listed in Broadmead, St James, noted in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 73).

19 October 1698: either he or John Hunt III [no place of work noted] granted licence to marry Mary Hawkridge of Holy Cross alias Temple; at Temple (Hollis and Ralph (eds) 1952: 293).

2 March 1713/4: either he or brother John Hunt III and wife Mary took James Mathews apprentice.

1715 Polls - either he or John Hunt III in St James.

19 March 1716/7: James Mathews turned over to Ezekiel and Elianor Millard "by consent of the Master of the Company and all parties", which last part of the phrase suggests John Hunt may have been alive at this time.

(6 November 1723: James Mathews originally apprenticed to either John Hunt II or John Hunt III and later turned over to Ezekiel Millard decd free.)

John Hunt II a brother of John Hunt III (cf Thomas Lewis III and Thomas Lewis IV, both sons of Thomas Lewis II).

HUNT, John III (302)

A 1685/6, F 1694, either this John Hunt or John Hunt III fl 1715, poss. fl 1716/7

6 March 1685/6: son of Flower Hunt late of Bristol, pipemaker decd, and of Christian his wife apprenticed to his mother for 7 yrs.

11 October 1694: free, though described as having been apprenticed to his father Flower Hunt and not to his mother.

27 October 1694: either he or brother John Hunt II [no wife mentioned] took over Holliday Holborrow apprentice from their deceased brother Richard Hunt.

1696: a John and Mary Hunt listed in Broadmead, St James, noted in list of

Bristol inhabitants (Ralph and Williams (eds) 1968: 73).

19 October 1698: either he or John Hunt II [no place of work noted] granted licence to marry Mary Hawkridge of Holy Cross alias Temple at Temple (Hollis and Ralph (eds) 1952: 293).

2 March 1713/4: either he or brother John Hunt II and wife Mary took James Mathews apprentice.

1715 Polls - either he or John Hunt II in St James.

9 March 1716/7: James Mathews turned over to Ezekiel and Elianor Millard "by consent of the Master of the Company and all parties", which last part of the phrase suggests John Hunt may have been alive at this time.

(6 November 1723: James Mathews originally apprenticed to either John Hunt III or John Hunt II and later turned over to Ezekiel Millard free.)

John Hunt III a brother of John Hunt II (cf Thomas Lewis III and Thomas Lewis IV, both sons of Thomas Lewis II).

HUNT, Richard (303)

A 1677, F by 1693, D by 1694

22 September 1677: son of Flower Hunt late of Bristol, pipemaker decd, apprenticed to Christian Hunt, widow, his mother, for 7 yrs.

Freedom record not found but free before 23 August 1693 as he and wife [no name given] took Holliday Holborrow apprentice on that date.

Dead by 27 October 1694 because Holliday Holborrow turned over to either John Hunt II or John Hunt III for that reason.

HUNT, Thomas (304)

A 1672

18 April 1672: son of Flower Hunt late of Bristol, pipemaker decd, apprenticed to Christian Hunt, widow of Flower Hunt, for 7 yrs.

ILES, John (305)

A 1747

16 September 1747: son of Thomas Iles of Westbury on Trym, Gloucestershire, gardener, to George and Elizabeth Ebbery for 7 yrs; £8 paid with apprentice the gift of the Gloucestershire Society in the City of Bristol.

JAMES, George I (306)

A 1673, released 1674

10 July 1673: son of George James late of Compton Dando, Somerset, coal-miner, apprenticed to Roger and Susannah Williams for 7 yrs.

2 July 1674: discharged.

JAMES, George II (307)

fl 1817-40

1817-19 Lamb St (Matthews's Dir.).
1820-25 no mention.
1826-29 Lewin's Mead (Matthews's Dir.) - 1827-29 address given as "Lewin's Mead (Clifton)", perhaps indicating James worked in Lewin's Mead but lived in Clifton.
1830 no mention.
1831 Lewin's Mead (Matthews's Dir.).
1832-34 no mention.
1835-40 Lewin's Mead (Matthews's Dir.).

1817-18 ditto (Bristol Index or Evans' Dir.).

1837 ditto (Robson's Dir.).

Listed as a biscuit-maker and pipemaker 1826-28.

Succeeded by Mary James (q.v.), presumably his widow.

Presumably the George James recorded in Lamb St 1817-19 is the same George James recorded in Lewin's Mead from 1826 onwards, though definite proof is lacking.

(A William James born in Bristol (aet 31 in 1851, so B 1819 or 1820) noted working with wife and son in Bath 1851-73 - probably a business-owner (Brown and Brown 1974: 27).)

JAMES, Henry (308)

A 1656

31 October 1656: son of Edward James of Bristol, ropemaker, apprenticed to Jane Wall widow of [blank - John is meant] Wall for 7 yrs and 1 covenant yr for which he is to have 20s.

JAMES, Mary (309)

fl 1842

1842 Lewin's Mead (Robson's Dir.).

Successor of George James II (q.v.), prosumably her decd husband.

(A William James born in Bristol (aet 31 in 1851, so B 1819 or 1820) noted working with wife and son in Bath 1851-73 - probably a business-owner (Brown and Brown 1974: 27).)

JAMES, William I (310)

F 1756, fl 1774 Bristol, fl 1781 Eton, Bucks

Apprenticeship record not found.

18 February 1756: free having been apprenticed to Richard Bourne.

1774 Polls - St James; voted for Cruger.

1781 Polls - EATON [sic - presum. Eton], BUCKINGHAMSHIRE; voted for Cruger.

JAMES, William II (311)

F 1877

18 July 1877: free because son of John James of Bristol, tiler and plasterer.

Last pipemaker in Bristol to take his freedom.

(A William James born in Bristol (aet 31 in 1851, so B 1819 or 1820) noted working with wife and son in Bath 1851-73 - probably a business-owner (Brown and Brown 1974: 27).)

JANES, William (312)

A 1760

15 May 1760: son of Charles Janes of the parish of Westmanton [West Monkton], Somerset, cordwainer, apprenticed to William and Elizabeth Nicholas for 7 yrs.

JENKINS, Evan (313)

A 1684

21 July 1684: son of Richard Jenkins of Kilkenny, Cardiganshire, husbandman, apprenticed to John I and Susannah Lewis for 7 yrs.

JENKINS, James (314)

noted 1696, A 1700, F 1707, fl 1739

1696: noted with brother Nathaniel and parents Rowland and Ann Jenkins in St Mary Redcliff in list of Bristol inhabitants (Ralph and Williams (eds) 1969: 109).

26 July 1700: son of Rowland Jenkins of Bristol, milliner, apprenticed to William I and Mary Tippet for 7 yrs.

7 August 1707: free having been apprenticed to William Tippet I.

9 May 1709: he and wife [no name given] took Benjamin Davis apprentice.

(21(?) November 1713: his apprentice Benjamin Davis discharged by order of the Tolzey - Jenkins's wife not named in Tolzey Book entry either.)

11 February 1717/8: he and wife Mary took over John Wit Simmonds apprentice from John and Mary Wilson.

1722 Polls - St James; voted for Earl and Elton.

7 May 1722: he and wife Mary took James Walker apprentice.

25 March 1723: he and wife Mary took William Nicholas apprentice.

8 January 1727/8: he and wife Mary took over John Wallis apprentice from William I and Mary Tippet.

(2 May 1730: his apprentice William Nicholas free.)

4 November 1730: he and wife Mary took Richard Bourne apprentice.

21 March 1731/2: he and wife Mary took John Hassell apprentice.

1734 Polls - St Michael; voted for Scrope and Elton.

31 May 1735: he and wife Mary took over John Hercules apprentice from John and Sarah Jones.

8 February 1738/9: he and wife Mary took over Thomas Spencer apprentice from William and Jane Spencer.

(8 August 1739: his apprentice James Walker free.)

(1 October 1739: his apprentice John Hassell free.)

(24 October 1739: his apprentice Richard Bourne free.)

(15 November 1739: his son John Jenkins free.)

1739 Polls - St Michael; voted for Combe.

In the two Tolzey Book entries involving Jenkins - the dismissal of his apprentice Benjamin Davis in 1713 and his taking over Thomas Spencer as an apprentice in 1738/9 - Jenkins signs his name with an assured hand.

Hermessen (1924: 326 fig 9) illustrates a typical West Country early type 9 bowl with a cartouche on the side depicted as reading I/IENKINS/5 [sic] which is probably a James Jenkins product (fig e).

(Subsequent to the drafting of this thesis, wasters and kiln-debris excavated in Lewin's Mead in 1972 produced a number of varieties of pipes, the majority identifiable as products of James Jenkins (O. Kent 1973: 198; Arch. Rev. 7 (1972) 61 s.v. Bristol - Lewin's Mead). Most of Lewin's Mead is in St James parish, the extreme west is in St Michael (cf parishes from which Jenkins voted noted above; see also p.767).)

JENKINS, John (315)

F 1739

15 November 1739: free because son of James Jenkins of Bristol, pipemaker (noted in burgess rolls as being a Quaker).

1739 Polls - St Michael; voted for Combe.

JENKINS, Joseph (316)

F 1768, fl 1784

9 March 1768: free because son of Thomas Jenkins of Bristol, pipemaker.

1774 Polls - Temple; voted for Brickdale.

1781 Polls - ditto; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

JENKINS, Thomas (317)

F 1733, fl 1754

26 April 1733: free having married Elizabeth daughter of Thomas Andrews of Bristol, cooper.

1734 Polls - St Michael; voted for Coster.

1739 Polls - Temple; voted for Southwell.

1754 Polls - St Mary Redcliff; voted for Nugent and Beckford.

(9 March 1768: his son Joseph Jenkins (q.v.) free.)

(9 March 1768: his son-in-law John Okely II, husband of daughter Elizabeth, free.)

JOHNSON, Abraham (318)

A 1706

31 August 1706: son of Charles Johnson late of Bristol, chirurgeon decd, apprenticed to William I and Mary Tippet for 7 yrs.

JONES, Charles (319)

A 1687, F 1694

6 October 1687: son of Charles Jones of Bristol, brewer, apprenticed to Edward I and Jane Randall for 7 yrs.

13 October 1694: free having been apprenticed to Edward Randall I.

JONES, Devereaux I (first name also appears as Daveraux, Devereux, Deverux) (320)

A 1684, F 1691, fl 1713, D by 1727

28 June 1684: son of Jesse Jones of Bristol, blacksmith, apprenticed to Llewellin and Elizabeth Evans for 7 yrs.

3 July 1691: free having been apprenticed to Llewellin Evans.

1696: noted with wife Ruth and children Sarah, Ruth, John, and George in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 52).

10 May 1697: he and wife Ruth took over William Morgan apprentice from William [either William I or II] and Mary Evans.

3 February 1697/8: bondsman, noted only as of Bristol, in marriage licence for James Crookes, sailor, to marry Elinor Jones of St Michael; at St Michael's (Hollis and Ralph (eds) 1952: 287).

23 September 1703: he and wife Rebecca took John Nicholas apprentice.

13 November 1704: he and wife Rebecca took John Buckeridge apprentice.

10 July 1707: he and wife Rebecca took Charles Stuckley apprentice.

28 July 1713: he and wife Rebecca took Thomas Cogswell apprentice.

Dead by 10 April 1727 when son Devereaux Jones II (q.v.) became free.

Signs the marriage bond with a cross.

JONES, Devere[a]ux II (321)

B after 1696?, F 1727, fl 1739, D by 1748

Does not appear in 1696 list of Bristol inhabitants though father Devereaux Jones I and father's wife Ruth together with their children Sarah, Ruth, John, and George do appear, suggesting Devereaux II was born later than this time.

10 April 1727: free because son of Devereaux Jones I of Bristol, pipemaker decd.

1734 Polls - St James; voted for Coster.

1739 Polls - ditto; voted for Southwell.

Dead by 17 October 1748 when apprentice Isaac Battin, originally with William and Mary Foord, became free and Jones described as decd.

JONES, Edward (322)

A 1682

15 September 1682: son of Edward Jones of Bristol, tobacco-roller, apprenticed to William Evans [either William Evans I or William Evans II] and wife Katherine for 7 yrs.

Father not listed in Tyack's list of C17 Bristol freemen tobacco-rollers (1935b: 198).

JONES, John (323)

A 1725, F 1733, left Bristol May 1735

16 October 1725: son of Walter Jones late of Bristol, yeoman decd, apprenticed to Matthew Shingler for 7 yrs; friends to find apparel, £5 paid with apprentice *ex* Public Charity of the Parishioners of the Parish of St Michael Within.

24 April 1734: he and wife Sarah took John Hercules apprentice.

22 May 1735: a signed statement of this date by Jones released Hercules from his apprenticeship, Jones "being incapable by divers Loses & misfortune to Carry on [his] said trade" (see below).

31 May 1735: Hercules turned over to James and Mary Jenkins, Jones "being gone off".

Jones's signature to his statement releasing Hercules is in a rather laboured hand. The full statement reads as follows:

> Be it known to all whome it may concerne yt I John Jones Pipemaker being incapable by divers Loses & misfortunes to Carry on my said trade & having bound to me John the Son of William Hercules of the citty of Bristoll as an apprentice to learne the Said trade doe by these presents [first attempt at spelling this word crossed out] discharg the said John Hercules from his obligations he is under ["to me" added above the line at this point] by ye said Indentures of apprentishipp & Leave him at Liberty to serve any other person in wittness whearof I have this day given up the said Indentures to the said John Hercules as

witness my hand this 22^d day of may 1735

John Jones

(The document itself is not written by Jones.)

The document was attached to the Tolzey Book entry, which in arranging Hercules's transfer to James and Mary Jenkins notes that Jones "hath failed in his Circumstances & absconds for fear of being Arrested". As the Tolzey Book entry is dated 31 May Jones must have fled between 22 and 31 May, presumably immediately after the former date.

JONES, Richard I (324)

A 1637/8

16 March 1637/8: son of Richard Jones of Newnam, Gloucestershire, tailor, apprenticed to Edward I and Elizabeth Lewis for 7 yrs and 1 covenant yr, to receive at the end of his term "one Mould and one screw 2 toole belonging to the trade or xxxs".

JONES, Richard II (325)

A 1669, released 1669/70

3 August 1669: son of Richard Jones of Langhangell, Monmouthshire, yeoman, apprenticed to William Evans [either William Evans I or William Evans II] and wife Janet (?) for 7 yrs.

19 February 1669/70: released from apprenticeship.

JONES, Thomas (326)

A 1650

1 October 1650: son of Robert Jones of Childs Arker [?Childs Ercall], Shropshire, farmer, apprenticed to John and Elizabeth Calloway for a third of (tercio) 11 yrs.

JONES, Walter (327)

A 1628/9

14 January 1628/9: son of Morgan Jones of Magor, Monmouthshire, mercer, apprenticed to Samuel Morris, saddler and tobacco-pipe maker, and wife Margaret for 8 yrs.

JONES, William (328)

A 1668

28 April 1668: son of Winter Jones late of "Brecknock", gentleman decd, to William Evans [either William I or William II] and wife [no name given] for 7 yrs (the name Robert Pomrey is written first for the master, then stroked through).

KELLAWAY - see CALLOWAY X

KELLY, James (329)

F 1812

8 October 1812: free having married Ann daughter of John Fletcher of Bristol, soapboiler decd.

1812 Polls - Temple St, Temple; voted for Romilly.

KENNICOTT, Nicholas (330)

F 1809, fl 1812 Bristol, fl 1830 Swansea

2 November 1809: free having married daughter of William Westley of Bristol, carpenter decd.

1810-12 Lamb St (Matthews's Dir.).

1812 Polls - Pile St, St Mary Redcliff; voted for Davis.

1830 Polls - SWANSEA; voted for Davis and Baillie.

The 1848 edition of Hunt and Co's City of Bristol, Newport and Welch [sic] Towns Directory and the 1853 edition of Scammell's Gloucester, Bristol and South Wales Directory both list Edward and Nicholas Kennicott as a pipemaking firm at Hafod, Swansea; the placing of Edward before Nicholas in the listing suggests they may have been sons of the Bristol Nicholas Kennicott rather than father and son (I am indebted to Swansea Public Library for the 1848 reference).

KENTON, William - see KINTON, William X

KING, George (331)

A 1740

3 June 1740: son of John King late of the City of London, pipemaker, apprenticed to Elizabeth Phillips widow of John Phillips for 7 yrs; £3 charity money paid with the apprentice.

KING, John (332)

A 1731, F 1739, fl 1754

26 October 1731: son of Henry King of Bristol, brickmaker, apprenticed to William and Mary Nicholas for 7 yrs; £3 paid with the apprentice ex publico dono.

KING, Richard (333)

F 1660

26 October 1660: free having married Elizabeth daughter of Thomas Nash of Bristol, pinmaker.

KING, William (334)

A 1688, F 1695/6

15 November 1688: son of William King of Bristol, turner, apprenticed to Francis I and Alice Russell for 7 yrs; father to find apparel.

KINTON, William (Kington, Kenton, Keinton, Keynton) (335)

A 1650, F 1657, fl 1696

8 June 1650: son of William Kinton of Bristol, farmer, apprenticed to Jane Wall widow of John Wall pro tercio septem annorum.

10 September 1657: free having been apprenticed to Jane Wall.

27 August 1670: he and wife Mary took Jacob Silcocks apprentice.

(31 October 1673: his apprentice John Prosser I free.)

25 June 1677: he and wife Mary took Richard Saunders apprentice.

(14 January 1679/80: his apprentice Jacob Silcocks free.)

19 May 1685: he and wife Mary took William Scott apprentice.

(11 December 1685: his apprentice Richard Saunders free.)

15 October 1691: he and wife Mary took John Curry apprentice.

1 September 1694: he and wife Mary took Richard Hickes apprentice.

19 December 1694: his apprentice John Curry (above) discharged with the consent of the apprentice, his master, and his mother.

1696: noted with wife Mary and "servant" Richard Hickes (above) in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 52).

(23 February 1707/8: his apprentice William Scott free.)

KNELL, Philip (336)

A 1706, F 1713, fl 1754

17 June 1706: son of Philip Knell of Bristol, farrier, apprenticed to James and Katherine Abbott for 7 yrs; friends to find apparel.

28 October 1713: free having been apprenticed to James Abbott.

1715 Polls - St James.

1754 Polls - one poll book says St Peter, another Temple; voted for Nugent.

LANSDOWN, James (337)

A 1742, F 1774, fl 1781 Bristol, fl 1784 Southwark

4 May 1742: son of Samuel Lansdown of Bristol, hooper, apprenticed to Nicholas and Charity Willis for 7 yrs; friends to find apparel, £10 paid with the apprentice.

2 November 1774: free because son of Samuel Lansdown of Bristol, hooper decd.

1781 Polls - St Mary Redcliff; voted for Daubeny.

1784 Polls - St John, SOUTHWARK, SURREY; voted for Cruger.

LANSDOWN, William (Landsdown) (338)

F 1784, fl 1784 London, poss. fl London 1832-48

14 April 1784: free having married Sarah daughter of Samuel Bryant I of Bristol, pipemaker.

1784 Polls - St Paul, Shadwell, LONDON; voted for Cruger and Peach.

Possibly the William Lan(d)sdown noted at Essex St, Kingsland Rd, London 1832-48 (Bloice in Atkinson and Oswald 1969: 222, Oswald 1960a: 81); alternatively this Lansdown might be a son of the 1784 William Lansdown.

LEE, James (339)

A 1723, alive 1729

24 June 1723: son of William Lee of Bristol, sawyer, apprenticed to Rebecca Arthurs widow of John Arthurs for 7 yrs; friends to find apparel "& lot".

15 August 1726: turned over to Charles and Margaret Buckler.

29 May 1729: turned over to Thomas Owen [either Thomas Owen II or Thomas Owen III] and wife Hannah, his master and mistress [the Bucklers] being dead, by order of the Tolzey.

Tolzey Book entry for the latter transfer gives additional details. Lee's friends appeared to the magistrates for him to be re-apprenticed after the deaths of Buckler and his wife (whose name is given here as Sarah) because Lee was "destitute both of Instruction and Maintenance". This was agreed to with "the consent of the incorporated Company of Tobacco-pipemakers within the said City". Lee's signature is very poor while his mother makes an illegible mark; Owen, however, signs with a very assured hand. (The fact that Lee's mother signs suggests the father, William Lee, had died by this date.)

Brother of John and William Lee (qq.v.).

LEE, John (340)

A 1741/2, F 1749, fl 1765, D by 1775

7 January 1741/2: son of William Lee of Bristol, sawyre, apprenticed to John and Ruth Bryant for 7 yrs; friends to find apparel and washing.

13 November 1749: free having been apprenticed to John Bryant decd.

1754 Polls - St Michael; voted for Philipps and Beckford.

20 August 1757: he and wife Susannah took Robert Carter apprentice.

20 August 1757: he and wife Susannah took Henry Powell apprentice.

7 January 1765: he and wife Susannah took Henry Wickham apprentice (entry gives no trade for Lee).

(18 April 1767: his apprentice Robert Carter free.)

Dead by 1775 when his widow Susannah Lee (q.v.) listed at 86 Lewin's Mead (Sketchley's Dir.).

Brother of William and James Lee (qq.v.).

LEE, Susannah (341)

M by 1757, widowed bet. 1765 and 1775, fl 1775-85

Widow of John Lee (q.v.), married to him by 20 August 1757 when they took Robert Carter and Henry Powell apprentices.

Widowed between 7 January 1765 when she and John Lee took Henry Wickham apprentice and 1775 when she appears alone as a pipemaker (see below).

1775 86 Lewin's Mead (Sketchley's Dir.).

1785 Lewin's Mead (The Bristol Dir.).

LEE, William (342)

A 1721/2, F 1729

19 March 1721/2: son of William Lee of Bristol, sawyer, apprenticed to John and Ruth Bryant for 7 yrs; friends to find apparel "et lotion'".

24 May 1729: free having been apprenticed to John Bryant.

Brother of James and John Lee (qq.v.).

LEWES - spelling of the surname Lewis used instead of or in conjunction X with the spelling Lewis by earlier members of the Lewis I and Lewis 2 families (see family trees) - Samuel I, Edward I, Hugh, and Edward II; John and Francis. The spelling Lewis is used consistently here in order to obviate confusion; those individuals using the spelling Lewes have this noted in brackets following their name at the top of their entry.

LEWIS, Ann (343)

fl 1864-78

1874-65 10 New St (Matthews's Dir.).
1866-78 22 New St (ditto) - possibly a street numbering change from the above entry.

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other compiled 6 January 1953.

Widow of George Lewis (q.v.).

Succeeded at 22 New St by Thomas George II in 1879 and Mrs. George in 1882-83.

LEWIS, Edward I (Lewes) (344)

A 1624, no freedom date found, fl 1631-40/1, prob. D by 1652

25 March 1624: son of Samuel Lewis I "smith and tobaccopipemaker" and wife Elizabeth, apprenticed to father.

Freedom entry not found.

7 April 1631: he and wife Elizabeth took Daniel Billings apprentice.

20 March 1632/3: he and wife Elizabeth took Bartholemew Elliott apprentice.

16 March 1637/8: he and wife Elizabeth took Richard Jones apprentice.

18 March 1640/1: he and wife Elizabeth took John Bladen I apprentice.

Probably dead by September 1652 because not listed among founder-members of Bristol Pipemakers' Guild; the Elizabeth Lewis listed there could be his widow (above) but could also be his mother, wife of Samuel Lewis I (see LEWIS, Elizabeth).

(15 December 1661: son Hugh Lewis (q.v.) free.)

LEWIS, Edward II (Lewes) (345)

F 1678/9, fl 1722

Apprenticeship record not found.

24 March 1678/9: free having been apprenticed to his father Hugh Lewis.

(24 February 1706/7: son Samuel Lewis III free.)

1722 Polls - St James; voted for Earl and Elton.

LEWIS, Elizabeth (346)

fl 1652

September 1652: founder-member of Bristol Pipemakers' Guild - referred to there as widow; could be either the Elizabeth wife of Samuel Lewis I and noted 1624 or, more likely, the Elizabeth wife of Edward Lewis I (Samuel I's son) noted 1631, 1632/3, 1637/8, and 1640/1. Guild's charter claims all founding members were freemen or freemen's widows, but no evidence that either Samuel Lewis I or Edward Lewis I were ever freemen piepmakers.

LEWIS, Francis (Lewes) (347)

F 1691, fl 1722, D or left Bristol by 1736

28 March 1691: free because son of John Lewis of Bristol, pipemaker.

7 April 1691: he and wife [unnamed] took John Tippet I apprentice.

25 July 1715:he and wife [unnamed] took John Sutherland apprentice.

1722 Polls - St James; the words "Que alms" occur after Lewis's name in the lists, perhaps indicating he was a Quaker and in an Almshouse, though why these points should be noted in a poll book is not clear. Voted for Hart.

Dead or left Bristol by 1 September 1736 when son Abraham apprenticed to John Lowle, merchant tailor, and wife Ann for 7 yrs (£10 paid with the apprentice from Edward Colston decd), Francis Lewis being described as "late of Bristol" though not actually stated deceased.

LEWIS, George (348)

fl 1847-63

1847-50 New St (Matthews's Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).
1853 7 Gt George St (Scammell's Gloucester, Bristol and South Wales Dir.)
1854-63 10 New St (Matthews's Dir.).

1856 10 New St (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.)

1863 ditto (Kelly's P.O. Bristol Dir.).

Succeeded by Ann Lewis (q.v.), presumably his wife.

LEWIS, Hugh (Lewes) (349)

fl 1652, F 1661, fl 1665, D by 1674

September 1652: founder-member of Bristol Pipemakers' Guild, though not free until 1661 (below) - guild's charter claimed all founding members were freemen or widows of freemen.

15 December 1661: free because son of Edward Lewis I of Bristol, pipemaker; fees [the 4s6d payable on taking one's freedom] waived by the Mayor.

19 July 1665: bondsman, noted as of St James, in marriage licence for Philip Grubb of St Peter, farmer, and Margaret Hawkins of St James; at St Mark's "alias le Gaunts" (Hollis and Ralph (eds) 1952: 41).

(17 April 1669: Timothy Ricketts free having been apprenticed originally with Hugh Lewis and subsequently with John Tucker.)

Dead by 18 May 1674 when son Samuel Lewis II (q.v.) apprenticed to Francis and Alice Russell.

(23 August 1677: son Thomas Lewis I (q.v.) apprenticed to John and Mary Sinderling, father referred to as deceased.)

(24 March 1678: son Edward Lewis II (q.v.) free.)

LEWIS, Isaac (350)

F 1768, fl 1781 London

9 March 1768: free because son of Thomas Lewis of Bristol, pipemaker decd [either Thomas Lewis III or Thomas Lewis IV].

1781 Polls - New St, Horsleydown, LONDON; voted for Cruger.

(13 December 1783: son John Lewis (q.v.) apprenticed to John Carey.)

Samuel Lewis IV, either a brother or cousin (see Lewis 2 family tree) at New St, Horsleydown, 1800-05.

LEWIS, John I (Lewes) (351)

F 1669, fl 1690, D by 1696

Apprenticeship record not found.

9 June 1669: free having been apprenticed to William Cissell.

29 October 1670: he and wife Susannah took William Weldey apprentice.

10 October 1677: he and wife Susannah took William Morgan apprentice.

21 July 1684: he and wife Susannah took Evan Jenkins apprentice.

21 October 1685: he and wife Susannah took Charles Horsman apprentice.

20 May 1690: he and wife Susannah took John Gray apprentice.

21 July 1690: he and wife Susannah took Thomas Harvey apprentice.

(28 March 1691: son Francis Lewis (q.v.) free.)

Dead by 22 June 1696 when widow Susannah Lewis (q.v.) took son Thomas Lewis II apprentice.

(25 March 1700: apprentice Thomas Harvey free.)

(10 April 1700: apprentice John Gray free.)

(27 August 1700: apprentice William Morgan free.)

(31 January 1704/5: George Powell (q.v.) free having married John Lewis I's daughter Elizabeth.)

LEWIS, John II (352)

A 1783

13 December 1783: son of Isaac Lewis of Bristol, pipemaker, apprenticed to John Carey (no wife mentioned) for 7 yrs; master to find apparel and washing, £10 paid with apprentice the gift of the City of Bristol to the Queen Elizabeth Hospital.

LEWIS, Samuel I (Lewes) (353)

fl 1624 as pipemaker, fl 1604/5-26 as smith

(20 January 1604/5: referred to as a smith when Thomas Reade apprenticed to him.)

25 March 1624: he and wife Elizabeth took son Edward Lewis I (q.v.) apprentice; father's trade given as "smith and tobaccopipemaker", trade

son apprenticed to not stated but active as a pipemaker by 1631.

27 March 1624: he and wife Elizabeth took John Williams I apprentice; Samuel Lewis I's trade given as pipemaker.

4 May 1626: he and wife Elizabeth took William Lewis [apparently not a relative] apprentice; Samuel Lewis I's trade given as smith but William Lewis F 1640 as a pipemaker.

(17 June 1626: referred to as a smith when son Samuel Lewis jr apprenticed to him.)

LEWIS, Samuel II (354)

A 1674

18 May 1674: son of Hugh Lewis late of Bristol, pipemaker decd, apprenticed to Francis I and Alice Russell for 7 yrs.

LEWIS, Samuel III (355)

F 1706/7

24 February 1706/7: free because son of Edward Lewis II.

LEWIS, Samuel IV (356)

F 1774, fl 1774-84 London area, prob. fl there 1805

29 October 1774: free because son of Thomas Lewis [either Thomas III or Thomas IV] of Bristol, pipemaker decd.

1774 Polls - Oxford St, LONDON; voted for Brickdale.

1781 Polls - LAMBETH, SURREY; voted for Cruger.

1784 Polls - New St, St John, SOUTHWARK, SURREY;voted for Cruger.

Probably the Samuel Lewis recorded in London and Southwark 1799-1805 (Oswald 1960a: 80;Bloice in Atkinson and Oswald 1969: 211) - recorded at New St, Horsleydown, [Southwark] 1800-05.

Isaac Lewis, either a brother or cousin (see Lewis 2 family tree) at New St, Horsleydown, 1784.

LEWIS, Susannah (first name also appears as Susanna, Susanne, Susan) (357)

M by 1670, widowed bet. 1690 and 1696, fl 1696-1707

Widow of John Lewis (q.v.), married to him by 29 October 1670 when they took William Weldey apprentice.

Widowed between 21 July 1690 when she and John Lewis took Thomas Harvey apprentice and 22 June 1696 when she appears alone as a pipemaker (see below).

22 June 1696: took her son Thomas Lewis II apprentice.

(28 June 1703: her son and apprentice Thomas Lewis II free.)

(22 July 1704: took John Bonner apprentice.)

24 November 1707: took Solomon Heane apprentice.

(9 April 1712: her apprentice John Bonner free.)

(26 July 1727: her apprentice Solomon Heane free.)

LEWIS, Thomas I (358)

A 1677, F 1685, fl 1693

23 August 1677: son of Hugh Lewis late of Bristol, pipemaker decd, apprenticed to John and Mary Sinderling for 7 yrs.

10 December 1685: free having been apprenticed to John Sinderling.

7 October 1693: bondsman, noted only as of Bristol, in marriage licence

for Timothy Lewis of Bristol tobacco-cutter and Mary Slade of Aston, Somerset; at Winterbourne (Hollis and Ralph (eds) 1952: 247).

(6 August 1713: John Prosser II free having been apprenticed to a Thomas Lewis - more likely Thomas Lewis II than Thomas I.)

The Timothy Lewis in the marriage bond is presumably a relative, but he does not appear in Tyack's list of C17 Bristol tobacco-cutters (Tyack 1935b: 197-8).

Thomas Lewis I signs marriage bond with a mark.

LEWIS, Thomas II (359)

A 1696, F 1703, fl 1715, D by 1721 according to one source, fl 1722 according to another

22 June 1696: son of John Lewis late of Bristol, pipemaker decd, apprenticed to Susannah Lewis widow of John Lewis for 7 yrs.

28 June 1703: free having been apprenticed to Susannah Lewis.

(6 August 1713: John Prosser II free having been apprenticed to a Thomas Lewis - more likely this Thomas Lewis than Thomas I.)

1715 Polls - St James.

According to burgess rolls dead by 27 November 1721 when son Thomas Lewis IV (q.v.) free; nevertheless 1722 Poll Book records him voting at that election from St James.

(24 July 1727: son Thomas Lewis III free, at which time father referred to as dead.)

LEWIS, Thomas III (360)

F 1727, fl 1734, either he or Thomas Lewis IV fl 1754 and D by 1768

24 July 1727: free because son of Thomas Lewis II of Bristol, pipemaker decd.

1734 Polls - St James; voted for Coster.

1739 Polls - either he or Thomas Lewis IV (perhaps more likely the latter) votes from St Thomas; voted for Combe.

1754 Polls - ditto, votes from Temple; voted for Nugent.

If this Thomas Lewis is the father of Isaac Lewis (q.v.) then dead by 9 March 1768 when Isaac takes his freedom.

(Samuel Lewis III free 29 October 1774 by which time his father, either Thomas III or Thomas IV Lewis, is described as dead.)

Thomas Lewis III and Thomas Lewis IV are brothers; Isaac Lewis and Samuel Lewis III could either be brothers or cousins depending on whether they had the same Thomas Lewis father (see Lewis 2 family tree).

LEWIS, Thomas IV (361)

A 1721, F 1739, either he or Thomas Lewis III fl 1754 and D by 1768

27 November 1721: son of Thomas Lewis II late of Bristol, pipemaker decd, apprenticed to Margaret Cooper widow of John Cooper for 7 yrs; 40s paid with the apprentice ex dono Ald Kitchen decd.

22 October 1739: free having been apprenticed to Margaret Cooper.

1739 Polls - either he or Thomas Lewis III (perhaps more likely the former) votes from St Thomas; voted for Combe.

1754 Polls - ditto, votes from Temple; voted for Nugent.

If this Thomas Lewis is the father of Isaac Lewis (q.v.) then dead by 9 March 1768 when Isaac takes his freedom.

(Samuel Lewis III free 29 October 1774 by which time his father, either Thomas III or Thomas IV Lewis, is described as dead.)

Thomas Lewis IV and Thomas Lewis III are brothers; Isaac Lewis and Samuel Lewis III could either be brothers or cousins depnding on whether they had the same Thomas Lewis father (see Lewis 2 family tree).

LEWIS, William (362)

A 1626, fl 1639/40, F 1640, prob. D by 1652

4 May 1626: son of Lodovice [Lewis] Richard of Llandigver, Monmouthshire, husbandman decd, apprenticed to Samuel I and Elizabeth Lewis for 8 yrs and 1 covenant yr - Samuel Lewis I described in the entry as a smith (see LEWIS, Samuel I).

29 January 1639/40: he and wife Margaret took Robert Cabell apprentice.

6 June 1640: free having been apprenticed to Samuel Lewis I "smith", William Lewis described as a tobacco-pipe maker.

Probably dead by September 1652 because not listed among founder-members of the Bristol Pipemakers' Guild.

First Bristol pipemaker to take his freedom.

LEWTON, John - see NEWTON, John X

LISCOMBE, Nicholas (363)

fl 1837-39

1837 17 Gt Ann St (Matthews's Dir.) - general entries gives number as 15.
1838-39 10 Gt Ann St (ditto) - ditto.

William Tribble (q.v.) listed at 15 Gt Ann St 1837.

LLOYD, Isaac (Loyd) (364)

A 1693/4, F 1713

13 March 1693/4: son of Walter Lloyd of Abbergainey [prob. Abergavenny],

Monmouthshire, grocer, apprenticed to Edmond and Christian Sinderling for 7 yrs.

Subsequently turned over to James and Katherine Abbott (see below) but no entry for this found.

17 August 1713: free having been apprenticed first to Edmond Sinderling decd and then to James and Katherine Abbott.

LLOYD, Thomas (365)

F 1784

3 May 1784: free having married Mary daughter of Thomas Cummins of Bristol, pipemaker decd.

1784 Polls - Castle Precincts.

LOCK, Philip (366)

A 1682

11 April 1682: son of Philip Lock late of Bristol, clothworker decd, apprenticed to William Evans [either William Evans I or William Evans II] and wife Mary for 7 yrs.

LONDON, Charles (367)

fl 1715

1715 Polls - St Michael.

LOVELESS, Robert (Lovelace) (368)

A 1708, F 1715/6, fl 1734

14 August 1708: son of Robert Loveless of Bristol, bodice-maker decd, apprenticed to William and Eliza Cullin for 7 yrs.

13 November 1712: turned over by consent of all parties to John I and Eleanor Macey.

28 January 1715/6: free having been apprenticed first to William Cullen and then to John Macey I.

Loyd, Isaac - see LLOYD, Isaac X

MACEY, John I (Maceye, Macy, Masey, Massey, Masee, Mase, Mary) (369)

A 1691, noted 1696, F 1700, fl 1726

31 October 1691: a pauper infant of the parish of "Holy Cross alias Temple" apprenticed to John Holstead II and wife (name not given) for 7 yrs by order and consent of Jerome Churchey and Samuel Whitchurch, Guardians of the Parish Church and Jacob Steward and Thomas Eagle, Overseers of the Poor.

1696: listed with John II and Mary Holstead in Temple in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 236).

12 April 1700: free having been apprenticed to John Holstead II.

25 June 1706: he and wife Eleanor took John Cooper apprentice.

14 August 1708: he and wife Eleanor took over Robert Loveless apprentice from William and Eliza Cullin.

(6 August 1713: apprentice John Cooper free.)

17 November 1713: he and wife Eleanor took Anthony Baily I apprentice.

14 October 1714: he and wife Eleanor took Joseph Millsom apprentice.

1715 Polls - Temple.

16 March 1719/20: he and wife Eleanor took Thomas Spendar apprentice.

4 May 1721: he and wife Eleanor took William Reece apprentice.

(7 November 1721: his apprentice Anthony Baily I free.)

1722 Polls - according to Oswald 1960a: 82, Macey is recorded voting at this election; this writer has been unable to find the reference (see 6: V).

(10 September 1722: his apprentice Joseph Millsom free.)

(7 November 1723: his son John Macey II (q.v.) free.)

25 April 1726: he and wife Eleanor took Edward Sinderlin apprentice.

(Probably his son John Macey II and wife Rebecca who took Richard Carter II apprentice 12 May 1729.)

(Probably his son John Macey II and wife Rebecca who took over Thomas Morgan apprentice from Charles Buckler decd 16 May 1729.)

(Probably John Macey II's apprentice Richard Carter II free 6 October 1738, at which time Macey referred to as dead.)

(9 October 1739: his apprentice Edward Sinderlin free, by which time Macey referred to as dead.)

MACEY, John II (370)

F 1723, prob. fl 1729 and D by 1738

7 November 1723: free because son of John Macey I of Bristol, pipemaker.

12 May 1729: probably this John Macey and wife Rebecca who took Richard Carter II apprentice.

16 May 1729: probably this John Macey and wife Rebecca who took over Thomas Morgan apprentice from Charles Buckler decd.

6 October 1738: Richard Carter II (above) free at which time his master John Macey described as dead.

18 October 1738: Joseph Macey son of John Macey apprenticed to Joseph Hurditch, joiner, and wife Mary for 7 yrs, £14 being paid with the apprentice - John Macey referred to here as "late of Bristol" though not actually

as deceased; no mother of Joseph or wife of John Macey noted but reference probably to John Macey II.

MARMDRELL, William (371)

A 1681

24 August 1681: son of William Marmdrell of Hallow[illegible]rowe, Somerset, coal-miner, apprenticed to John and Joan Abbot for 7 yrs.

MARSHMAN, Robert (372)

fl 1643/4

14 January 1643/4: noted as a pipemaker "an inhabitante within the sayd Citty [Bristol]; and for a long tyme hath bin, and doth yet continue in the office of a Constable of the Warde of Stt Michaells" (he had been forced to become a constable of Bath) (Nott (ed) 1935: 51; cf Latimer 1908: 27).

MARTIN, Benjamin (373)

A 1712

24 November 1712: son of William Martin of Bristol, hooper, apprenticed to Henry and Mary Edwards for 7 yrs; friends to find apparel.

MATHEWS - see also MATTHEWS X

MATHEWS, James (Matthew, Matthews) (372)

A 1713/4, F 1723, fl 1739

2 March 1713/4: son of George Matthew [sic] of Bristol, victualler, apprenticed to John Hunt [either John Hunt II or John Hunt III] and wife Mary for 7 yrs; friends to find apparel.

19 March 1716/7: transferred, with "the consent of the Master of the Company and all parties", to serve the remainder of his term with Ezekiel and Elianor Millard.

6 November 1723: free having been apprenticed first to John Hunt II or John Hunt III and then to Ezekiel Millard decd.

1734 Polls - St James; voted for Coster.

1739 Polls - ditto; voted for Southwell.

(3 April 1754: his son-in-law Samuel Pearce I free having marrried his daughter Elizabeth.)

(9 September 1780: his son-in-law John Andrews free having married his daughter Sarah.)

MATHLEN, James (375)

A 1719

9 November 1719: son of James Mathlen late of Palton, Somerset, yeoman decd, apprenticed to Edward and Mary Reed for 7 yrs; friends to find apparel.

MATTHEW, James - see MATHEWS, James X

MATTHEWS, Nicholas X

Referred to as a deceased Bristol pipemaker in apprentice roll entry of

7 April 1716 when a son John was apprenticed to John Baker, glassmaker. No other evidence that he was a Bristol pipemaker, however, and almost certainly he is the Gloucester pipemaker of that name referred to (again as deceased) in apprentice roll entry of 20 April 1719 when another son, Richard, was apprenticed to the same glassmaker John Baker (see 6: VII(c)).

MAUN, George (376)

fl 1840s?, 1860s?

1843 22 Gt George St (Matthews's Dir.) - listed for this year only and only in general entries section; perhaps a misprint for James Maun (q.v.) who appears for this year in the trades section at 17 Gt George St and who for the years 1837-39 and 1842 appears at number 17 in the trades section and at number 22 in the general entries section. Rather complicated James Maun entries continue (with a Jonathen Maun - q.v. - replacing him in 1846) and from 1847 until 1864 he appears at the 22 Gt George St property, a re-numbering of the Gt George St properties resulting in number 22 becoming number 55 from 1864.
1865 55 Gt George St (Matthews's Dir.) - renumbering of number 22 (see above); either a successor to James Maun for this year only or another possible misprint for James Maun.

MAUN, James (Mawn, Maund) (377)

fl 1837-64

1837-42 17 Gt George St according to trades section, 22 Gt George St in 1837-39 and 1842 general entries section (Matthews's Dir.).
1843 17 George St in trades section, George Maun (q.v.) at 22 Gt George St in general entries (Matthews's Dir.).
1844-45 17 Gt George St (ditto).
1846 not listed, but a Jonathan Maun appears instead, at 22 Gt George St (ditto).
1847-57 22 Gt George St (ditto).
1858-63 ditto, but listed only in general entries (ditto).
1864 55 Gt George St - 22 renumbered - but listed only in general entries (ditto).

1841 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Miles and Berkeley.

1852 Polls - ditto; voted for Berkeley and Langton.

1848 Gt George St (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Bristol Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

MAUN, Jonathan (378)

fl 1836-38, 1840s?

1836-38 17 Ann [sic] St (Matthews's Dir.) - parhaps a mistake for 17 Gt George St, see MAUN, James.
1846 22 Gt George St (Matthews's Dir.) - perhaps a mistake for James Maun (q.v.), perhaps also a confusion with Jonathan Moul (q.v.) fl 1846-47 at New St.

MILLARD, Ezekiel (Miller) (379)

A 1705/6, F 1713, fl 1716/7, D by 1721

18 January 1705/6: son of Joseph Millard late of Chewton Mendip, Somerset, farmer, apprenticed to John I and Margaret Harvey for 7 yrs; apprentice to find apparel for himself during his term and in consideration thereof his master and mistress were to pay him £2 15s per annum during his apprenticeship.

10 December 1713: free by order of the Common Council having served part of his apprenticeship with John Harvey I.

7 May 1714: he and wife Elianor took Maurice Phillips apprentice.

1715 Polls - St James.

19 March 1716/7: he and wife Elianor took over James Mathews apprentice from John Hunt (either John II or John III) and wife Mary.

Dead by 30 October 1721 when apprentice Maruice Phillips free.

(6 November 1723: apprentice James Mathews free, Millard referred to as dead.)

MILLS, John (380)

F 1830, fl 1845

27 July 1830: free having married Anne daughter of Henry Thomas of Bristol, cabinetmaker.

1830 Polls - New St, St Philip and Jacob Out-parish; voted for Protheroe.

1844-45 50 New St (Matthews's Dir.).

Succeeds William Pratt (q.v.) who is recorded at 50 New St 1838-43; may possibly, in view of his being on New St as early as 1830, have been an assistant of Pratt living with him and taking over his business on the latter's death or retirement.

MILLS, William (381)

fl 1837-62

1837 24 Temple St (Robson's Dir.).

1841 ditto (Matthews's Dir.).
1842-45 no mention.
1846-62 24 Temple St (Matthews's Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.).

1852 Temple St (Slater's (late Pigot's) Dir.).

1853 24 Temple St (Scammell's Bristol Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

1856 ditto (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.).

MILLSOM, James I (Milsom, Milson, Millom) (382)

A 1709/10, F 1724, fl 1739

16 February 1709/10: son of James Millsom of Bristol, tailor, apprenticed to Robert I and Sarah Tippet for 7 yrs.

5 October 1724: free having been apprenticed to Robert Tippet I.

1734 Polls - St James; voted for Coster.

1739 Polls - ditto; voted for Southwell.

Brother of Joseph Millsom.

MILLSOM, James II (Milsom) (383)

F 1781, fl 1784

25 January 1781: free because son of Richard Millsom of Bristol, pipemaker.

1781 Polls - Temple; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

MIL[L]SOM, Joseph (384)

A 1714, F 1722, fl 1739 London

14 October 1714: son of James Mil[l]som of Bristol, tailor, apprenticed to John and Eleanor Macey for 7 yrs; friends to find apparel.

10 September 1722: free having been apprenticed to John Macey I.

1739 Polls - LONDON; voted for Southwell.

Brother of James Millsom I.

MILLSOM, Richard (Milsom, Milsome, Milsum) (385)

A 1700, F 1707/8, fl 1784

4 November 1700: son of James Millsom of Bristol, tobacconist, apprenticed to Charles and Elizabeth Chick for 7 yrs.

22 March 1707/8: free having been apprenticed to Charles Chick.

1715 Polls - St James.

1722 Polls - ditto; voted for Hart.

(19 October 1725: son Richard apprenticed to Alexander Abell "tonsor chirurgeon & Perriwigmaker" and wife Martha for 7 yrs; £10 paid with apprentice *ex dono* Edward Colston Esq decd.)

1734 Polls - St James; voted for Coster.

1754 Polls - ditto; voted for Philipps and Beckford.

1774 Polls - ditto; voted for Cruger.

(25 January 1781: son James Millsom II (q.v.) free.)

1781 Polls - St Michael; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

Father James Millsom does not appear in Tyack's list of C17 Bristol tobaconnists (Tyack 1935b).

Richard Millsom is probably the longest-lived Bristol pipemaker, for assuming he was ca. 14 when apprenticed in 1700 he must have been born ca. 1686 and must therefore have been very nearly 100 when recorded voting in 1784.

MILSOM - see MILLSOM

X

MONKES, Thomas (386)

fl 1656-69/70

21 April 1656: Thomas Monkes, described as a pewterer, and wife Julian took John Haskins apprentice to educate him in the art of a tobacco-pipe maker.

31 January 1669/70: Monkes and wife Sarah, this time described as a pipemaker, took Priamus Williams as an apprentice pipemaker.

(18 May 1677: Monkes's apprentice Priamus Williams free as a pipemaker.)

MOON, Charles (Moore) (387)

A 1763, F 1770, fl 1820

7 January 1763: son of Richard Moon of the parish of Enmore, Somerset, baker, apprenticed to William and Elizabeth Nicholas for 7 yrs.

10 January 1770: free having been apprenticed to William Nicholas.

1774 Polls - St James; voted for Cruger and Burke.

1781 Polls - Bedminster; voted for Cruger.

1784 Polls - Castle Precincts; voted for Cruger and Peach.

(7 April 1808: son James Moon (q.v.) free.).

1812 Polls - Lawrence Hill, St Philip and Jacob Out-parish; voted for Romilly and Davis.

1818 Polls - Ann [sic] St, St Philip and Jacob Out-parish; voted for Davis and Protheroe.

1820 Polls - ditto; voted for Davis and Bright.

MOON, James (388)

F 1808, fl 1841

7 April 1808: free because son of Charles Moon of Bristol, pipemaker.

1812 Polls - Gt Ann St, St Philip and Jacob Out-parish; voted for Romilly and Davis.

1818 Polls - Ann St [sic], St Philip and Jacob Out-parish; voted for Davis and Baillie.

1820 Polls - ditto; voted for Davis and Bright.

(26 July 1830: son Richard Moon (q.v.) free.)

1830 Polls - Rose St, Temple; voted for Davis and Acland.

1832 Polls -ditto; voted for Protheroe and Vyvyan.

1833-34 Pipe Lane, Temple (FIG 204; Matthews's Dir.).

(30 July 1839: son Simon Moon (q.v.) free.)

1841 Polls - Avon St, Temple; voted for Miles and Fripp.

MOON, Richard (389)

F 1830

26 July 1830: free because son of James Moon of Bristol, pipemaker.

1830 Polls - Rose St, Temple; voted for Davis and Baillie.

MOON, Simon (390)

F 1839, fl 1841

30 July 1839: free because son of James Moon of Bristol, pipemaker.

1841 Polls - Temple Back, Temple, voted for Miles and Fripp.

MOONE, (possibly MOORE), Thomas (391)

A 1669/70

3 February 1669/70: son of John Moone or Moore of Hiliwestone, Somerset, collier, apprenticed to William Evans [either William Evans I or William Evans II - no terms of apprenticeship given].

MOORE, Whitson (392)

A 1792

22 June 1792: son of Richard Moore late of Bristol, cordwainer decd, apprenticed to John and Mary Carey for 7 yrs; master to find apparel and washing, £10 paid with apprentice the gift of John Carr Esq to the Queen Elizabeth Hospital.

MORGAN, George (393)

D by 1669

8 April 1669: George Morgan, son of George Morgan of Bristol, pipemaker decd, apprenticed to Thomas Hulett, pinmaker, and wife Dorothy for 8 yrs - George Morgan sr presumably a tobacco-pipe maker, but if so no other reference to him in Bristol known.

MORGAN, Thomas (394)

A 1726/7, alive 1729

20 January 1726/7: son of Thomas Morgan of Bristol, weaver, apprenticed to Charles and Margaret Buckler for 7 yrs; friends to find apparel except shoes and stockings and venital & Galer'.

16 May 1729: Morgan turned over to John and Rebecca Macey [probably John

Macey II], Buckler being dead; "13" [pounds or shillings not specified] paid with apprentice.

MORGAN, William I (395)

A 1677, F 1700

10 October 1677: son of John Morgan of Abergavenny, Monmouthshire, husbandman, apprenticed to John I and Susannah Lewis for 7 yrs.

27 August 1700: free having been apprenticed to John Lewis I.

MORGAN, William II (396)

A 1693, alive 1697

9 November 1693: son of John Morgan of the town of Ross, Herefordshire, yeoman decd, apprenticed to William Evans [either William Evans I or William Evans II] and wife Mary for 7 yrs; friends to find apparel.

10 May 1697: transferred with consent of master and mother to serve remainder of apprenticeship with Devereaux I and Ruth Jones.

MORRIS, Samuel (397)

fl 1628/9

Noted as a "saddler and tobaccopipemaker" when he and wife Margaret took Walter Jones apprentice 14 January 1628/9.

MORTIMORE, Nicholas I (398)

fl 1722

1722 Polls - St Mary Redcliff; voted for Earl and Elton.

Referred to as Nicholas Mortimore sr - presumably father of Nicholas Mortimore jr (see MORTIMORE, Nicholas II).

MORTIMORE, Nicholas II (399)

fl 1722

1722 Polls - St Mary Redcliff; voted for Earl and Elton.

Referred to as Nicholas Mortimore jr - presumably son of Nicholas Mortimore sr (see MORTIMORE, Nicholas I).

MOSS, Nathaniel (400)

A 1690

11 December 1690: son of Richard Moss of Bristol, whittawer, apprenticed to John and Bridget Griffin for 7 yrs.

MOUL, Jonathan (401)

fl 1846-47

1846-47 New St (Matthews's Dir.).

(A William Moul (?) born in Bristol (aet 29 in 1861, so B 1831 or 1832) noted working with wife in Bath in 1861 census - probably a journeyman (Brown and Brown 1974: 28).)

MURRY, Thomas (402)

f1 1722

1722 Polls - St Philip and Jacob; voted for Hart.

NAISH, Benjamin (Nash) (403)

A 1719, F 1727, fl 1734

29 July 1719: son of Thomas Naish late of Bristol, tailor decd, apprenticed to Philip Calloway [either Philip Calloway I or Philip Calloway II] and wife Christian for 7 yrs; friends to find apparel, £3 paid with the apprentice.

27 July 1727: free having been apprenticed to Philip Calloway (either Philip I or Philip II).

1734 Polls - St Thomas; voted for Elton and Coster.

NAYLOR, William (Nayler, Nayle) (404)

F 1722, fl 1734/5

Apprenticeship record not found.

3 September 1722: free having been apprenticed to William Tippet [either William Tippet I or William Tippet II - perhaps more likely to be William I].

14 April 1727: he and wife Susannah took over Thomas Dennis apprentice from William Tippet I.

11 July 1728: he and wife Susannah took Isaac Dennis apprentice.

1734 Polls - St James; voted for Elton and Coster.

(9 December 1734: Thomas Dennis free having been apprenticed first to William Tippet I and then to Naylor.)

22 February 1734/5: he and wife Susannah took John Bateman I apprentice.

(8 October 1739: his apprentice Isaac Dennis free.)

NEWMAN, James (405)

fl 1754

1754 Polls - St Philip and Jacob; voted for Philipps and Beckford.

NEWTON, John I (Lewton) (406)

A 1732/3, F 1747, fl 1754

5 March 1732/3: son of John Newton of Bristol, weaver, apprenticed to John Squibb [no wife mentioned] for 7 yrs; friends to find "apparel & lot".

27 June 1747: free because son of John Newton of Bristol, weaver.

1754 Polls - St James; voted for Nugent.

NEWTON, John II (407)

A 1743

29 June 1743: son of Francis Newton late of Bristol, clothworker decd, apprenticed to William and Elizabeth Nicholas for 7 yrs; £10 paid with apprentice the gift of the Queen Elizabeth Hospital.

NICHOLAS, Benjamin (408)

A 1737

20 December 1737: son of John Nicholas of Bristol, shipwright, apprenticed

to William and Mary Nicholas for 7 yrs; friends to find apparel.

Younger brother of his master William Nicholas.

NICHOLAS, John (409)

A 1703

23 September 1703: son of Thomas Nicholas of Bristol, weaver, apprenticed to Devereaux I and Rebecca Jones for 7 yrs.

NICHOLAS, William (410)

A 1723, F 1730, fl 1775

25 March 1723: son of John Nicholas of Bristol, shipwright; apprenticed to James and Mary Jenkins for 7 yrs; friends to find apparel.

2 May 1730: free having been apprenticed to James Jenkins.

5 January 1730/1: he and wife Mary took over Thomas Wilmot apprentice from Anthony I and Hester Baily.

26 October 1731: he and wife Mary took John King apprentice.

20 November 1732: he and wife Mary took over Joseph Challender I apprentice from Anthony I and Hester Baily.

1734 Polls - St James; voted for Scrope and Elton.

14 June 1734: he and wife Mary took over Jethro Philips apprentice from Thomas and Sarah Harvey.

(3 May 1737: Joseph Coules free having been apprenticed first to Thomas Harvey and then to Nicholas.)

20 December 1737: he and wife Mary took Benjamin Nicholas apprentice.

(19 October 1739: his apprentice John King free.)

1793 Polls - St James; voted for Combe.

27 March 1741: he and wife Mary took Richard Robinson apprentice.

(28 April 1741: Joseph Callender I free having been apprenticed first to Anthony Baily and then to Nicholas.)

29 June 1743: he and wife Elizabeth took John Newton II apprentice.

(27 March 1754 - his apprentice Richard Robinson free.)

1754 Polls - St James; voted for Nugent.

15 May 1760: he and wife Elizabeth took William Janes apprentice.

7 January 1763: he and wife Elizabeth took Charles Moon apprentice.

(10 January 1770: his apprentice Charles Moon free.)

1774 Polls - St James; voted for Brickdale.

1775 29 Lewin's Mead (Sketchley's Dir.).

Elder brother of his apprentice Benjamin Nicholas.

NOADES, Thomas (411)

F 1784

7 April 1784: free having married Elizabeth widow of James Foriter of Bristol, hallier.

Cooksey (1974: 29, 30; *in litt*. 26 November and 18 December 1974) suggests Noades may be the Thomas Noads [sic] of Poole, pipemaker, concerning whom another Poole pipemaker, John Bolt, testified on 11 November 1777 that he (Noads) owed him £2 " and upwards for money lent"; but other than the similarity of names and trades and the approximate contemporaneity of dates there is no proof that these two were the same person.

NORMAN, P. (412)

fl 1863

1863 24 Temple St (Kelly's P.O. Bristol Dir.).

(A William Norman born in Bristol (aet 47 in 1851, so B 1803 or 1804) noted working with two sons and three daughters in Bath 1841-45 - probably a business-owner (Brown and Brown 1974: 27).

Another William Norman [presumably a son of the above], also born in Bristol (aet 39 in 1871, so B 1831 or 1832), noted working in Bath 1870-71 - probably a business-owner (Brown and Brown 1975: loc. cit.).)

NOTTON, Joseph (413)

fl 1853-61

1853 Eugene St (Scammell's Gloucester, Bristol and South Wales Dir.).

1858-61 7 Wade St (Matthews's Dir.).

NUNNEY, Richard (Nunnye, Ninny, Nonney, Nonny, Noney, Nony, Nanny, Nany; first name appears once as John) (414)

fl 1652, F 1655, fl 1696, D by 1713

September 1652: founder-member of Bristol Pipemakers' Guild, though not free until 1655 (below) - guild's charter claimed all founding members were freemen or widows of freemen.

8 September 1655: free by order of the Common Council and on paying a fine of £2.

14 September 1655: he and wife Anne took Jacob Prosser apprentice.

21 September 1662: bondsman, noted as of St. James, in marriage licence for Robert Nunny of St Philip, cordwainer, and Joanne Townsend of St Philip, widow; at St Augustine's.

(17 March 1662/3: apprentice Jacob Prosser free.)

2 April 1670: he and wife Anne took Evan Dyer apprentice.

29 January 1676/7: he and wife Anne took son Robert Nunny apprentice.

12 June 1677: he and wife Anne took William Tapping apprentice.

(4 December 1677: son John apprenticed for 7 yrs to Peter Ely, merchant, and wife Anne to learn the art of a sailor.)

(7 February 1680/1: his apprentice Evan Dyer free.)

7 March 1682/3: he and wife Anne took George Parsons apprentice.

31 October 1683: he [called John here in error] and wife Anne took William Davis apprentice.

23 February 1688/9: he and wife Anne took John Probin apprentice.

(20 February 1689/90: his son-in-law Richard Abbots (q.v.) free having married his daughter Mary.)

4 May 1691: he and wife Anne took Richard Huett apprentice.

1696: he and wife Anne and daughter Sarah noted in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 54).

(21 May 1699: his apprentice John Probin free.)

Dead by 10 August 1713 when apprentice William Davis free.

1696 list of Bristol inhabitants (above) notes the Nunney family next to the Robert Tippet family (qq.v.); Ralph (in litt. 9 September 1970) notes the Nunneys were in Lewin's Mead by 1691.

NUNNEY, Robert (Nony) (415)

A 1676/7

29 January 1676/7: son of Richard Nunney of Bristol, pipemaker, apprenticed to father Richard Nunney and wife Anne for 7 yrs.

OAKLEY - see OKELY X

O'BRYAN(T), John - see BRYANT, John X

OCKFORD, Samuel (Oxford) (416)

A 1671, F 1680/1, D by 1700

9 August 1671: son of William Ockford of Thornbury, Gloucestershire, yeoman decd, apprenticed to Thomas I and Elizabeth Poyte for 7 yrs and 1 covement yr for which he was to have at the end of his term 15s.

7 February 1680/1: free having been apprenticed to Thomas Poyte I.

Dead by 1 October 1700 when son Job apprenticed to Philip Grubb, cooper, and wife Katherine (there is an identical apprenticeship entry for Job Ockford, but with the surname spelt Oxford, recorded 7 October 1701).

OFFER AND TOVEY (417)

Richard Offer (q.v.) and Charles Tovey (q.v.) appear together in Thomas George IV's list of makers he remembered or whose names were familiar to him said to date to 1878 or 1880 and compiled September 1952. In the other, undated, list compiled 6 January 1953, however, only Offer appears. Offer and Tovey's address is given as "off East St" (Offer alone is listed on East St); in fact directory entries list both makers at East St, Bedminster, but at different periods - Offer is listed 1859-66, Tober 1889-91. For further details see under OFFER, Richard and TOVEY, Charles.

OFFER, Richard (418)

fl 1859-66

1859-66 East St, Bedminster (Matthews's Dir.) - not listed in general entries in 1866.

1863 ditto (Kelly's P.O. Bristol Dir.).

Occurs as Offer and Tovey (see also TOVEY, Charles) with address "off East St" in Thomas George IV's list of makers he remembered or whose names were familiar to him compiled September 1952 and said to date to 1878 or 1880; occurs simply as "Offer" at East St in Thomas George IV's list compiled 6 January 1953 and undated. Thomas George IV was born 1872 and died 1968.

OKELY, John I (Oakley, Oakely) (419)

A 1723, F 1732, fl 1739

9 September 1723: son of Edward Okely of Bristol, weaver, apprenticed to Henry and Mary Edwards for 7 yrs; friends to find apparel, 40s paid with apprentice *ex dono* Ald, Kitchen decd.

23 May 1732: free having been apprenticed to Henry Edwards.

1734 Polls - St John; voted for Coster.

1739 Polls - St Michael; voted for Southwell.

Probably John Okely I'S kiln at Water St-Hollister St site (now under the Bond St-George Whitefield Ct complex) (Oswald 1970b: 240; material in Bristol City Museum); Water St-Hollister St site in St James, where Okely recorded 1734 though he had moved by 1739 (above). Oswald also says (*loc. cit.*, probably quoting excavator of kiln site; no report has appeared) that John Okely I was father of John II: if so, however, John II chose to take freedom by marriage and not patrimony.

OKELY, John II (Oakley, Oakely) (420)

F 1768, fl 1798, D by 1800

9 March 1768: free having married *Elizabeth* daughter of Thomas Jenkins of Bristol, pipemaker.

1774 Polls - St Michael; voted for Brickdale and Cruger.

1781 Polls - ditto; voted for Daubeny.

1784 Polls - ditto; voted for Brickdale and Daubeny.

15 January 1787: he and wife *Martha* took Isaac Davis apprentice.

1791 Lewin's Mead (*The Universal British Dictionary*).
1792 ditto (*The New Bristol Dir.*)

1794-95 ditto (*Matthews's Dir.*)

5 July 1795: he and wife Martha took George Goodwin apprentice; referred to here as a pipe *manufacturer*.

1797-98 Lewin's Mead (Matthews's Dir.).

Dead by 1800 when "Widow Oakley" recorded in Lewin's Mead (Matthews's Dir.).

(15 April 1806: widow Martha took Thomas Watson apprentice.)

(17 May 1809: son William Okely (q.v.) free.)

(1 October 1812: son-in-law Thomas George I (q.v.) free having married his daughter Ann, John Okely II referred to as decd.)

Oswald (1970b: 240, probably quoting excavator of kiln site attributed to John Okely I - for further detail see OKELY, John I) says John Okely II a son of John I. If so, however, John II chose to take his freedom by marriage (above) and not by patrimony.

OKELY, Martha (Oakley) (421)

M by 1787, widowed bet. 1798 and 1800, fl 1800-12

Second and surviving wife of John Okely II (q.v.), married to him by 15 January 1787 when they took Isaac Davis apprentice.

Widowed between 1798 when husband is listed in Lewin's Mead in Matthews's directory for that year and 1800 when she appears as "Widow Oakley" in Lewin's Mead in Matthews's directory for that year (see below).

1800 Lewin's Mead (Matthews's Dir.) - appears as "Widow Oakley".
1801 ditto (ditto) - appears as Martha Oakley.
1803-05 ditto (ditto) - ditto.

15 April 1806: took Thomas Watson apprentice, referred to as widow.

1806-12 Under the Bank (Matthews's Dir.) - appears as Martha Oakley and Son" [son is William Okely - q.v.]; residence given as Host St 1810-12.

Martha and William Okely probably took over the Under the Bank premises of Anna Viner (q.v.).

OKELY, William (Okeley) (422)

working with mother 1806-12, F 1809, fl 1813-27 Bristol, perhaps fl 1830s London and succeeded there by widow and son 1850s

1806-12 listed with mother Martha Okely - as "Martha Oakley and Son" - at Under the Bank (Matthews's Dir.) - residence given as Host St 1810-12.

17 May 1809: free because son of John Okely I of Bristol, pipemaker.

20 April 1812: he and wife Amelia took Philip Guy apprentice. In the apprentice roll entry the scribe has started to spell the name "Oak-" but has stroked it out at this point and written it Okeley.

1812 Polls - St Augustine's Back, St Augustine; voted for Romilly and Davis.

1813-21 Under the Bank (Matthews's Dir.) - residence given as Host St up to 1820, given as Kingston's Bldgs, Kingsdown, in 1821; described 1813-21 as "tobacco pipe manufacturer, Importer of tobacco pipe and potters clays"; 1818-19 "& Co" added after name.
1822 Redcliff Back; retail shop Redcliff Hill (Matthews's Dir.) - described as "tobacco pipe manufacturer, Brown Stone Potter, and Importer of Tobacco and Potters' Clay".
1823 Redcliff Hill (ditto) - same description as in 1822 but it appears in the general section only.
1824-26 no entries.
1827 St John's Bridge (ditto) - residence given as Neyler's Cottages, Horfield; described as "Tobacco Pipe manufacturer, Importer of Tobacco Pipe & Potters' Clay".

(14 August 1838: his apprentice Philip Guy, described as "late apprentice" of William Okely, free.)

1817-18 Under the Bank (Bristol Index, or Evans' Dir.) - "and Co" appears after name, described as "clay & General Merchants Tontine Warehouse No 9".

1818 Polls - Host St, St Augustine; voted for Bright [poll-book binding makes it impossible to see whether Okely used his second vote - if so, it went to Baillie].

1820 Polls - Host St, St Michael (sic - Host St is divided between St August and St Michael parishes, the boundary at one point running down the centre of the street); voted for Bright.

A William Okeley is recorded 1836 at Mount Sq, Liverpool Rd, London (Bloice in Atkinson and Oswald 1969: 222); a Mrs Amelia Oakley is recorded 1850-57 at Blue Anchor Alley, Bunhill Row, St Luke's, London (Bloice loc. cit.), to be succeeded there for the single year 1858 by an Alfred Oakely

(Bloice loc. cit.). No definite proof however that these are the Bristol William Okely and his wife (widow) and son.

Okely-produced pipe bearing the reconstructed slogan SUCCESS TO TRAD[E] on one side of their stem and -KLY·*·BRISTOL* (from which it appears the surname was being spelt Oakly - unless it was spelt Okly, which is hardly likely) occur in the Stroud area (see 6: VII(a)) and are either very late products of John Okely II or, more likely, products of Martha and/or William Okely. A later C18 bowl with OKELY moulded up the side of the bowl comes from Cirencester (Oswald 1960c: 64 fig 11,7; see also 6:VII(a)) is more likely to be a product of John Okely II or his widow Martha - it indicates, however, the earlier spelling of the name.

OSBORNE, Catherine (Osborn) (423)

fl 1864-66

1864-66 5 Phippen St (Matthews's Dir.) - in 1864 appears in general section only, Edwin G. Osbourne (q.v. - presum. husband of Catherine) still appearing in trade section; 1865-66 surname appears as Osborn.

Pipemakers at this premises previously were Joseph Pearce and George Edward Hunt (qq.v.).

Phippen St planned 1840 and built 1842 (Latimer 1887: 250, 258).

OSBORNE, Edwin G. (424)

fl 1863, listed 1864 but prob. dead

1863 5 Phippen St (Matthews's Dir.) - also listed in trades section in 1864 but probably dead by this date as Catherine Osborne (q.v. - presumably his widow) appears in that year in the general section and then appears in trades section 1865-66.

OWEN, Thomas I (425)

A 1688/9, fl 1696, F 1698, D by 1725

23 February 1688/9: son of Richard Owen late of Bristol, cordwainer decd, apprenticed to Elizabeth Evans widow of Llewellin Evans for 7 yrs.

26 August 1696: referred to as a pipemaker of Bristol, granted licence to marry Mary Bull of St Thomas, no place of marriage stated; bondsman to this agreement was pipemaker James Abbot (Hollis and Ralph (eds) 1952: 273).

5 July 1698: free having been apprenticed to Elizabeth Evans.

15 November 1698: he and wife Mary took John Harvey I apprentice.

(4 January 1705: his apprentice John Harvey I free.)

Dead by 23 December 1725 when son Thomas Owen II free.

Signs marriage bond with a mark.

OWEN, Thomas II (426)

F 1725, fl 1739

23 December 1725: free because son of Thomas Owen I of Bristol, pipemaker decd.

29 May 1729: either this Thomas Owen or Thomas Owen III and wife Hannah took over James Lee apprentice from Charles and Margaret Buckler.

1734 Polls - either this Thomas Owen or Thomas Owen III voted from Temple; voted for Scrope and Elton.

11 July 1734: either this Thomas Owen or Thomas Owen III and wife Hannah took Nicholas Corner apprentice.

22 May 1739: Nicholas Corner (above) turned over to William and Mary Foord "by consent of all parties", which phrase suggests Owen was alive at this time.

1739 Polls - both Thomas Owen II and Thomas Owen III listed, one (presumably the one voting in 1734) voting from Temple, the other from St Michael.

Former voted for Southwell, latter for Scrope.

The Thomas Owen signing the Tolzey Book record of James Lee's transfer (above) signs with a very assured hand.

OWEN, Thomas III (427)

A 1716, F 1727, fl 1739

20 September 1716: son of Richard Owen of Bristol, tobacco roller, apprenticed to Henry and Anne Hoar for 7 yrs; £5 10s paid with the apprentice, 10s being the gift of "the late Queen Elizabeth".

25 July 1727: free having been apprenticed to Henry Hoar.

29 May 1729: either this Thomas Owen or Thomas Owen II and wife Hannah took over James Lee apprentice from Charles and Margaret Buckler.

1734 Polls - either this Thomas Owen or Thomas II voted from Temple; voted for Scrope and Elton.

11 July 1734: either this Thomas Owen or Thomas Owen II and wife Hannah took Nicholas Corner apprentice.

22 May 1739: Nicholas Corner (above) turned over to William and Mary Foord "by consent of all parties", which phrase suggests Owen was alive at this time.

1739 Polls - both Thomas Owen III and Thomas Owen II listed, one (presumably the one voting in 1734) voting from Temple, the other from St Michael. Former voted for Southwell, latter for Scrope.

Thomas OwenIII's father Richard not listed in C17 Bristol tobacco rollers noted by Tyack (1935b).

The Thomas Owen signing the Tolzey Book record of James Lee's transfer (above) signs with a very assured hand.

PACKER, Abraham (428)

A 1723/4

17 February 1723/4: son of Thomas Packer of Wickwar, Gloucestershire, weaver, apprenticed to Katherine Abbott widow of James Abbott for 7 yrs; friends to find apparel, £4 paid with the apprentice.

PACKER, John (429)

F 1839

30 July 1839: free because son of Joseph Packer of Bristol, butcher decd.

PAINTER, Francis (430)

A 1708, F 1715

2 September 1708: son of Francis Painter late of Peterchurch, Herefordshire, glover decd, apprenticed to John and Mary Wilson for 7 yrs; friends to find apparel.

12 September 1715: free having been apprenticed to John Wilson.

PARDOE, C. and G. (431)

fl 1863

1863 Avon St, St Philip's (Kelly's P.O. Bristol Dir.).

Apparently successor to William Henry Pardoe (q.v.).

PARDOE, William Henry (432)

fl 1847-56

1847-48 Avon St, St Philip's (Matthews's Dir.).

1853 ditto (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

1856 ditto (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

Branch of the Nantgarw Pardoe pipemaking and pottery firm; family originally from Derby, had been in ceramics business in Bristol earlier in century (for further details see 6: VII(a) and refs given there).

PARKER, John (433)

F 1818, fl 1837

12 June 1818: free having married Mary Palmer widow of John Palmer of Bristol, painter.

1818 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1820 Polls - Wade St, St Philip and Jacob Out-parish; voted for Davis and Bright.

1830 Polls - ditto; voted for Davis and Baillie.

1835 Polls - ditto; voted for Vyvyan and Miles.

1837 Polls - ditto; voted for Miles and Fripp.

PARSON, George (434)

A 1682/3

7 March 1682/3: son of Edward Parsons of Almondsbury, Gloucestershire, yeoman, apprenticed to Richard and Anne Nunney for 7 yrs.

PARTRIDGE, Humphrey (435)

F 1650, fl 1652, either D or left Bristol by 1654

25 September 1650: free by order of the Committee chosen for admitting freemen upon his petition and payment of ordinary fees.

September 1652: founder-member of Bristol Pipemakers' Guild.

Described as "late of Bristol", a phrase usually though not here associated with "deceased", 1 May 1654 when son Walter apprenticed to Derrick Hill, cooper, and wife Sarah for 7 yrs.

PARTRIDGE, Thomas (436)

D by 1670/1?

Referred to as a "Pipemaker" 30 January 1670/1 when daughter Susanna or Susan Partridge apprenticed to Francis Webb, merchant, and wife Ann for 7 yrs to learn knitting, sewing, "and all other things belonging to a servant maid" (McGrath (ed) 1955: 10-11). Thomas Partridge possibly dead by this date as apprenticeship indenture bears the marks of the daughter and her mother Mary Partridge but no signature or mark of the father.

PATT, William - see PRATT, William X

PAYTE, John - see POYT[E], John III X

PAYTON, Francis (437)

A 1717, F 1754

20 November 1717: son of Francis Payton of Bristol, house-carpenter, apprenticed to Thomas and Anne Harvey for 7 yrs; friends to find apparel "& lot".

4 April 1754: free having been apprenticed to Thomas Harvey.

1754 Polls - St James; voted for Nugent.

PEARCE, Edward (438)

fl 1775

1775 8 Hallier's Lane (Sketchley's Dir.).

Possibly the same as Eli Pearce (q.v.) noted at this time and recorded in St John parish, where Hallier's Lane was, in 1774.

Hallier's Lane replaced by Nelson St, opened 1799 (Latimer 1893: 496).

PEARCE, Eli (Pierce; first name also appears as Ely) (439)

F 1766, fl 1781

25 June 1766: free having married Elizabeth Bonner daughter of John Bonner of Bristol, pipemaker.

1774 Polls - St John; voted for Cruger and Burke.

1781 Polls - St Thomas; voted for Cruger.

Possibly the same as Edward Pearce (q.v.) recorded by Sketchley in 1775 at 8 Hallier's Lane, which was in St John parish (cf 1774 ref above).

PEARCE, John I (Pierce, Peirce) (440)

A 1689, F 1696, fl 1733, fl 1734?

6 November 1689: son of Maurice Pearce of Bristol, smith, apprenticed to Margaret Holstead widow of James Holstead [sic - John Holstead I is meant]

for 7 yrs.

13 November 1696: free having been apprenticed to Margaret Holstead.

26 January 1713/4: he and wife Anne took Richard Andrews apprentice.

1715 Polls - St Mary Redcliff.

21 November 1721: he and wife Anne took William Pearce I apprentice.

1722 Polls - St Mary Redcliff; voted for Hart.

9 December 1724: he and wife Anne took Nicholas Willis apprentice.

16 September 1732: he and wife Anne took Jethro Phillips apprentice.

11 June 1733: he and wife Anne took Thomas Redwood apprentice.

(11 March 1733/4: his apprentices William Pearce I and Nicholas Willis free.)

14 June 1734: his apprentice Jethro Phillips turned over to William and Mary Nicholas "by consent of all parties", which phrase suggests Pearce was alive at this time.

PEARCE, John II (441)

fl 1849-59

1848-59 New St (Matthews's Dir.).

1848 New St, Old Market St (Hunt's Bristol and Welch Towns Dir.).

1850 New St (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Bristol Dir.).
1853 ditto (Scammell's Gloucester, Bristol, and South Wales Dir.).

1856 ditto (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.).

PEARCE, Joseph (442)

fl 1842-56

1842 80 Redcliff St (Pigot's Dir.).

1848 ditto (Hunt's Bristol Dir.).

1850 5 Phippen St (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Bristol Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

1856 ditto (Matthews's Dir.).

Pipemakers following Pearce at 5 Phippen St are George Edward Hunt, Edwin G. Osborne, and Catherine Osborne (qq.v.).

PEARCE, Samuel I (443)

F 1754, fl 1781 Bristol, in London by 1784, D beginning of April 1784?

3 April 1754: free having married Elizabeth daughter of James Mathews of Bristol, pipemaker.

1754 Polls - Christchurch (appears as a scrivener in one poll book); voted for Nugent.

1774 Polls - St Philip and Jacob; voted for Cruger and Burke.

(8 February 1781: son Samuel Pearce II free.)

1781 Polls - St Philip and Jacob; voted for Cruger.

1784 Polls - Nightingale Lane, East Smithfield, LONDON; voted for Brickdale and Daubeny.

Dead by 7 April 1784 when son William Pearce II free.

Voting in 1784 election commenced 3 April and ended 8 May (Latimer 1893: 456); if Samuel Pearce I did indeed vote and the reference to his being dead when son William Pearce II became free 7 April is correct, then he must have voted between 3 and 7 April and died between whichever day he voted and 7 April. It is not known for certain how out-voters cast their votes; the presumption is that it was often done either by voters' agents or by election agents. It is always possible Samuel I had recorded his vote before the beginning of the polls in order to have it sent to Bristol by an agent, in which case he could have died a short time earlier than the beginning of April; it is also possible, however, that he voted from the grave so to speak (also discussed in 6: VI).

PEARCE, Samuel II (444)

F 1781, fl 1784 London

8 February 1781: free because son of Samuel Pearce I of Bristol, pipemaker.

1781 Polls - St Philip and Jacob; voted for Cruger.

1784 Polls - Redcross St, East Smithfield, LONDON; voted for Brickdale and Daubeny.

PEARCE, William I (Pierce, Peirce) (445)

A 1721, F 1733/4, fl Bristol 1748, fl London 1754, fl Bristol 1774

21 November 1721: son of William Pearce of Bristol, weaver, apprenticed to John I and Anne Pearce for 7 yrs.

11 March 1733/4: free having been apprenticed to John Pearce I.

1734 Polls - St James; voted for Coster.

1739 Polls - ditto; voted for Southwell.

8 September 1740: he and wife Susannah took John Edwards I apprentice.

7 September 1747: he and wife Susannah took William Woodward apprentice.

1 September 1748: he and wife Susannah took Stephen Taylor apprentice.

1754 Polls - LONDON; voted for Nugent.

(19 February 1756: his apprentice Stephen Taylor free.)

1774 Polls - St Augustine: voted for Cruger and Burke.

(William Pearce recorded in St John in 1784 Polls more likely to have been William Pearce II (q.v.).)

PEARCE, William II (446)

F 1784

7 April 1784: free because son of Samuel Pearce I decd.

Probably this William Pearce recorded in 1784 Polls from St John rather than William Pearce I (q.v.); voted for Brickdale.

PENNY, John (447)

fl 1734

1734 Polls - St Peter; voted for Coster.

PERRETT, William (Perrott) (448)

fl 1849-64

1849-64 Gt Ann St (*Matthews's Dir.*).

1850 ditto (*Hunt's Dir.*).

1852 Polls - Gt Ann St, Sp Philip and Jacob Out-parish; voted for Berkeley and Langton.

1852 Ann [sic] St (*Slater's (late Pigot's) Dir.*).

1853 Gt Ann St (Scammell's *Bristol Dir.*).

1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

1856 13 Gt Ann St (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.) Dir.).

PETERS, John (449)

A 1748/9, F 1756

23 January 1748/9: son of John Peters of Bristol, porter, apprenticed to Isaac and Elizabeth Battin for 7 yrs; friends to find apparel and washing.

19 February 1756: free having been apprenticed to Isaac Battin.

PETERS, William (450)

fl 1819-20

1819-20 43 [St] Thomas St (Matthews's Dir.).

1816 a William Peters listed at 1 Thomas St as a tinplate worker and a William Peters jr at 43 Thomas St (above) also as a tinplate worker. In 1817 and 1818 the William Peters at 1 Thomas St continues to be listed as a tinplate worker, but William Peters jr not listed. In 1819 "William Peters and Son" appears at 1 Thomas St and the above William Peters at 43 Thomas St as a pipemaker.

PHILLIPS, - (451)

D by 1652

Presumably a pipemaker, the deceased husband of Lettice Phillips (q.v.) who is referred to as a widow among the founder-members of the Bristol Pipemakers' Guild in September 1652. Guild's charter claims all founding members were freemen or widows of freemen but no evidence that Phillips was ever a freeman pipemaker.

PHILLIPS, Aaron (452)

A 1687

4 April 1687: son of Robert Phillips of Bristol, brazier, apprenticed to J(o)ane Tippet widow of Robert Tippet I for 7 yrs.

PHILLIPS, Elizabeth (453)

M by 1732, widowed between 1739 and 1740

Widow of Maurice Phillips (q.v.), married by 1 July 1732 when she and Maruice took John House apprentice.

Widowed between November or December 1739 when husband Maurice recorded voting at election and 3 June 1740 when she is recorded (below) taking an apprentice and described as a widow.

3 June 1740: took George King apprentice.

PHILLIPS, Jethro (first name also appears as Gethro) (454)

A 1732, F 1739

16 September 1732: son of John Phillips of Bristol, tailor, apprenticed to John I and Anne Pearce for 7 yrs; friends to find apparel.

14 June 1734: turned over "by consent of all parties" to William and Mary Nicholas for remainder of term.

24 October 1739: free because son of John Phillips tailor.

1739 Polls - St Thomas; voted for Southwell.

PHILLIPS, John (455)

A 1741, released 1744

13 April 1741: son of Maurice Phillips late of Bristol, pipemaker decd, apprenticed to John and Hester Wickham for 7 yrs; friends to find apparel, £5 apid with the apprentice.

29 November 1744: discharged by order of Tolzey.

Tolzey Book entry indicates a mutual agreement between master and apprentice and his friends that Phillips "be entirely discharged" and have "no right or benefit of the Freedom of this City".

Phillips signs with a neat signature, Wickham with a mark.

PHILLIPS, Lettice (456)

fl 1652

September 1652: founder-member of Bristol Pipemakers' Guild - referred to as a "widdow" in the list of members, presumably widow of an otherwise unknown pipemaker (see PHILLIPS, -). Guild's charter claims all founding members were freemen or widows of freemen but no evidence that Lettice Phillips's deceased husband was ever a freeman pipemaker.

PHILLIPS, Maurice (first name also appears as Morris) (457)

A 1714, F 1721, fl 1739, D by 1740

7 May 1714: son of Maurice Phillips of Ecremont, Pembrokeshire, yeoman, apprenticed to Ezekiel and Eleanor Millard for 7 yrs; £4 paid with the apprentice.

30 October 1721: free having been apprenticed to Ezekiel Millard decd.

1722 Polls - Castle Precincts; voted for Hart.

1 July 1732: he and wife Elizabeth took John House apprentice.

1 June 1733: he and his wife Elizabeth took over John Thomas apprentice from John Purnell.

1734 Polls - St James; voted for Elton and Coster.

1739 Polls - St James; voted for Southwell.

Dead by 3 June 1740 when widow Elizabeth Phillips (q.v.) took George King apprentice.

(13 April 1741: his son John Phillips (q.v.) apprenticed to John and Hester Wickham.)

(21 November 1743: John Thomas free having been first apprenticed to John Purnell and later to Maurice and Elizabeth Phillips.)

Polling for 1739 election held in November and December; Maurice Phillips therefore died between November or December 1739 and the beginning of June 1740.

PHILLIPS, William (458)

A 1674, F 1689/90

10 June 1674: son of William Phillips late of Stinchcomb, Gloucestershire, shearman decd, apprenticed to James and Mary Prosser for 7 yrs.

19 February 1689/90: free having been apprenticed to James Prosser.

PICKERING, John (459)

A 1690, F 1700

27 October 1690: son of John Pickering of Bristol, worsted-comber, apprenticed to Robert and Alice Sheppard for 7 yrs.

3 April 1700: free having been apprenticed to Robert Sheppard.

PIDNEY, John (460)

A 1740/1

12 February 1740/1: son of John Pidney late of Yeovil, Somerset, skinner decd, apprenticed to Anthony I and Hester Baily for 7 yrs; £5 5s charity money paid with the apprentice.

PIERCE - see PEARCE X

PIKE, William, and Co (461)

fl 1805-12

1805-12 20 Christmas St (*Matthews's Dir.*).

Succeeds Joseph Powell (q.v.) at this address.

William Pike listed 1803-21 at Globe Tavern, Christmas St.

PLAYER, William (462)

F 1830, fl 1841

26 July 1830: free having married Sarah daughter of Peter Panou of Bristol, labourer.

1830 Polls - Redcross St, St Philip and Jacob In-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Protheroe and Williams.

1841 Polls - Gt Ann St, St Philip and Jacob Out-parish; voted for Miles and Fripp.

POPE, Thomas (463)

A 1707

29 August 1707: son of Thomas Pope of Clifton, Gloucestershire, lighterman, apprenticed to Charles and Elizabeth Chick for 7 yrs.

POWELL, George (464)

F 1704/5, fl 1734

31 January 1704/5: free having married Elizabeth daughter of John Lewis I of Bristol, pipemaker.

1722 Polls - St Michael; voted for Earl and Elton.

1734 Polls - Temple; voted for Scrope and Elton.

POWELL, Henry (465)

A 1757

20 August 1757: son of Sampson Powell late of Bristol, tailor decd, apprenticed to John and Susannah Lee for 7 yrs; friends to find washing and mending.

POWELL, Joseph (466)

fl 1803

1803 20 Christmas St (Matthews's Dir.).

Succeeded by William Pike and Co (q.v.).

POWELL, Robert I (467)

A 1636, F 1647, fl 1652

7 November 1636: son of Thomas Powell of Bristol, miller, apprenticed to John and Hane Wall for 8 yrs.

6 May 1647: free having been apprenticed to John Wall.

18 September 1650: he and wife Suzanne took George Hillman apprentice for a third of (pro tercio) 7 yrs.

September 1652: founder-member of Bristol Pipemakers' Guild.

POWELL, Robert II (468)

A 1730, F 1737, fl 1739

3 April 1730: son of Thomas Powell late of Bristol, cordwainer decd, apprenticed to John and Ruth O'Bryan [sic - Bryant] for 7 yrs; £5 paid with apprentice ex publico dono.

26 May 1737: free having been apprenticed to John O'Bryan [sic - Bryant].

1739 Polls - St James; voted for Combe.

POWELL, Thomas - see POYTE, Thomas I X

POYTE, John I (Poyt or Boyte) (469)

F 1680, fl 1715

Apprenticeship record not found.

19 October 1680: free having been apprenticed to his father Thomas Poyte I.

(28 February 1701/2: his apprentice Anthony Thatcher free.)

(3 July 1707: his son John Poyte II (q.v.) free.)

1715 Polls - a John Poyt listed in St James and a John Boyte in St Peter; one John Poyte I, the other John Poyte II.

POYTE, John II (Boyte or Poyt) (470)

F 1707, fl 1715

3 July 1707: free because son of John Poyte I of Bristol, pipemaker.

1715 Polls - a John Poyt listed in St James and a John Boyte in St Peter; one John Poyte II, the other John Poyte I.

(14 November 1739: his son-in-law Thomas Waddam free having married his daughter Mary.)

POYT[E], John III (Payte) (471)

A 1731/2, F 1754, fl 1739 Bristol, fl 1754 London

22 March 1732/2: son of John Poyte II of Bristol, pipemaker, apprenticed to Rebecca Arthurs widow of John Arthurs for 7 yrs; 40s paid with apprentice ex dono Ald. Kitchen decd.

1739 Polls - St James; voted for Southwell.

1754 Polls - LONDON; voted for Philipps and Beckford.

POYTE, Thomas I (Poycke, Poicke, Poite) (472)

A 1631, dismissed 1634, fl 1652, F 1656, fl 1671

6 August 1631: son of John Poyte late of Bristol, joiner decd, apprenticed to John and Jane Wall for 7 yrs.

1 July 1634: dismissed from his master's service and his indentures cancelled.

September 1652: founder-member of Bristol Pipemakers' Guild, though not free until 1656 (below) - guild's charter claimed all founding members were freemen or widows of freemen.

3 September 1656: described as "Thomas Poycke or Poyte", free because son of "John Poicke or Poite", joiner.

7 September 1657: he (referred to as Thomas Powell) and wife Elizabeth took James Bull 1 apprentice; turned over to Flower and Christian Hunt next day.

(13 November 1665: James Bull I apprenticed first to him and then to Flower Hunt, free.)

9 August 1671: he and wife Elizabeth took Samuel Ockford apprentice.

(19 October 1680: son John Poyte I (q.v.) free.)

(7 February 1680/1: his apprentice Samuel Ockford free.)

(8 February 1680/1: Thomas Arthur, tobacco-cutter, free having married Bridget daughter of a Thomas Poyt [sic](Tyack 1935b: 198) - perhaps a daughter of this Thomas Poyte.)

POYTE, Thomas II (Poite, Poit) (473)

F 1754

26 March 1754: free because son of John Poyte [either John Poyte II or John Poyte III - more probably John III] of Bristol, pipemaker.

1754 Polls - St Stephen; voted for Philipps and Beckford.

PRATT, William (Patt) (474)

fl 1835-43

1835-43 50 New St without (Matthews's Dir.) - "and mould" appears with entry 1835-38.

1837 New St (Robson's Dir.).

Succeeded at this address by J. Mills (q.v.).

PRING, W. (475)

fl 1884-90

1884-90 14 Lamb St (Wright's Dir.).

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953; however, address given in both lists as Gt Ann St.

For previous and subsequent pipemakers at this premises see 6: VI.

PRITCHARD, George (476)

A 1688, F 1695

20 July 1688: son of John Pritchard of the parish of Usk, Monmouthshire, innkeeper, apprenticed to William Evans [either William I or William II] and wife Mary for 7 yrs.

21 August 1695: free having been apprenticed to William Evans [either William Evans I or William Evans II].

PROBIN, John (Probyn) (477)

A 1668/9, F 1699/70

23 February 1668/9: son of Rowland Probin of Bristol, sawyer, apprenticed to Richard and Anne Nunney for 7 yrs.

21 March 1699/1700: free having been apprenticed to Richard Nunney.

PROCER, Joseph - see PROSSER, Joseph X

PROSSER, Jacob (first name also appears as James) (478)

A 1655, F 1662/3, fl 1680

14 September 1655: son of William Prosser of Brointles (?), Brecknockshire, husbandman, apprenticed to Richard and Anne Nunney for 7 yrs.

17 March 1662/3: free having been apprenticed to Richard Nunney.

10 June 1674: he and wife Mary took William Phillips apprentice.

23 September 1680: he and wife Mary took son Joseph Prosser (q.v.) apprentice.

(19 February 1689/90: his apprentice William Phillips free.)

(8 April 1700: his son and apprentice Joseph Prosser free.)

PROSSER, John I (479)

F 1673

Apprenticeship record not found.

31 October 1673: free having been apprenticed to William Kinton.

PROSSER, John II (480)

F 1713, fl 1722

Apprenticeship record not found.

6 August 1713: free having been apprenticed to Thomas Lewis [more likely Thomas Lewis II than Thomas Lewis I].

1715 Polls - St James.

1722 Polls - St James; voted for Earl and Elton.

PROSSER, Joseph (Procer) (481)

A 1680, fl 1693, F 1700

23 September 1680: son of James (or Jacob) Prosser of Bristol, pipemaker, apprenticed to his father and wife Mary for 7 yrs.

21 December 1693: bondsman, described as of Bristol, in marriage licence for William Howell of Bristol, sailor, and Ann Hardman of Temple; at Temple (Hollis and Ralph 1952: 249).

8 April 1700: free having been apprenticed to his father Jacob Prosser.

PUGH, John (482)

fl 1836-37

1836-37 Ring's Buildings, Temple Back (Mathews's Dir.).

PURNELL, John (Purnel) (483)

A 1704/5, F 1713, fl 1739

27 February 1704/5: son of George Purnell of Bristol, whittawer, apprenticed to Philip I and Anne Calloway for 7 yrs; friends to find apparel.

7 August 1713: free having been apprenticed to Philip Calloway.

29 February 1719/20: he and wife Mary took over John Barkley apprentice from Joel and Margaret Williams.

1722 Polls - St Stephen; voted for Hart.

20 December 1722: he and wife Mary took over Richard Coules apprentice from Henry and Mary Edwards.

31 January 1722/3: he and wife Mary took Alexander Weaver apprentice (Weaver discharged 5 July 1725).

23 October 1723: he and wife Mary took Ebenezer Wilkins apprentice.

(31 July 1727: his apprentice John Barkley free.)

(22 September 1731: Richard Coules free having been apprenticed first to Purnell and then to Henry Richards, though Purnell not noted in Coules's freedom entry.)

21 April 1733: Purnell [no wife mentioned] took John Thomas apprentice. (Thomas turned over to Maurice and Elizabeth Phillips 1 June 1733 "by consent of all parties").

(30 October 1739: John son of John Purnell apprenticed to William Hart the younger, merchant, to be educated as a sailor; gift of £10 with the apprentice from Edward Colston Esq decd.)

1739 Polls - St John; voted for Southwell.

(21 November 1743: John Thomas free having been originally apprenticed to Purnell and later turned over to Maurice Phillips.)

In the Tolzey Book account of Alexander Weaver's discharge (above) Purnell signs with a rather crabbed hand.

PURTON, William (484)

A 1714

19 August 1714: son of John Purton of Hereford, pipemaker, apprenticed to Thomas and Anne Harvey for 7 yrs; friends to find apparel.

QUARMAN, Peter I (485)

A 1732/3, F ?

23 November 1763: son of Peter Quarman I of Bristol, pipemaker, apprenticed to George and Elizabeth Ebbery for 7 yrs.

3 October 1774: free having been apprenticed to George Ebbery.

1774 Polls - St John; voted for Cruger.

QUINTON, Anthony (487)

A 1731, released 1733

28 June 1731: son of John Quinton late of Bristol, shipwright decd, apprenticed to Charles and Mary Hickes for 7 yrs; friends to find apparel.

18 June 1733: discharged by order of the Tolzey.

Tolzey Book entry gives no reason for discharge other than that there had been a mutual agreement between Hickes and Quinton and his friends. Hickes signs with a reasonable if thick signature, Quinton in a laboured and misspelt signature; his mother, whose name is given as Mary Berkham which indicates she had remarried, makes a mark.

QUINTON, John (Quinten) (488)

noted 1696, F 1699

Apprenticeship record not found.

1696: noted as a "servant" with Robert Tippett II family (which includes a "John" Tippet which must be J(o)ane Tippet widow of Robert Tippet I - cf below) in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 54).

28 October 1699: free having been apprenticed to Jane [sic] widow of Robert Tippet I.

1722 Polls - St Michael; voted for Earl and Elton.

QUOYSE, Thomas (489)

A 1640

24 April 1640: son of George Quoyse of Bristol, baker decd, apprenticed to Richard and Anne Berryman for 7 yrs.

RANDALL, Edward I (Rendall, Randell) (490)

F 1668, fl 1687, D by 1689

Apprenticeship record not found.

7 May 1668: free having been apprenticed to Alexander Cherrington I and "served out his time" with Flower Hunt.

27 August 1670: he and wife [blank left for her name] took Joseph Butt apprentice.

29 July 1673: he and wife Rachel took John Watts apprentice.

29 December 1679: he and wife Rachel took Isaac Hale apprentice.

29 October 1680: he and wife Rachel took James Bull II apprentice.

18 February 1681/2: referred to as of St Peter, granted licence to marry Jane Bennett of St Peter; at St Peter's, St Philip's, or St Mark's alias Le Gaunts (Hollis and Ralph (eds) 1952: 138).

6 October 1687: he and wife Jane took Charles Jones apprentice.

(28 June 1688: his apprentice Isaac Hale free.)

Dead by 4 September 1689 when widow Jane Randall (q.v.) took Edward Watts apprentice; on the same day his son Edward Randall II (q.v.) apprenticed to John I and Mary Sinderling and Edward I referred to as "late of" Bristol though not actually as decd.

(1 October 1690: his apprentice James Bull II free.)

(13 October 1694: his apprentice Charles Jones free.)

(8 April 1704: his apprentice Joseph Butt free.)

Surname almost invariably spelled Rendall; son Edward II, however, appears as Randall, which spelling is used here for consistency.

Signs marriage bond with a mark.

RANDALL, Edward II (491)

A 1689, F 1699

4 September 1689: son of Edward Randall I late of Bristol, pipemaker [not actually described as deceased but other evidence - see RANDALL, Edward I - indicates he was], apprenticed to John I and Mary Sinderling for 7 yrs; the mother to deliver one suit of apparel for the whole body throughout at the end of the second year of term.

29 June 1699: free having been apprenticed to John Sinderling.

Oswald (1960a: 89; Atkinson and Oswald 1969: 186) suggests this Edward Randall is the Edward Randall noted in London taking an apprentice Robert Bowes for £5 in 1719. There appears to be no positive evidence for this identification beyond the makers having the same name and being active at approximately the same time (for further discussion see 6: VII(a)).

RANDALL, Jane (492)

M 1681/2, widowed between 1687 and 1689, fl 1689

Second and surviving wife of Edward Randall II; married presumably shortly after 18 February 1681/2 when Edward I obtained a licence to marry her (see RANDALL, Edward I) and widowed between 6 October 1687 when Edward and she took Charles Jones apprentice and 4 September 1689 when she takes Edward Watts apprentice (below) and is referred to as Edward Randall's widow.

4 September 1689: takes Edward Watts apprentice.

(12 October 1700: her apprentice Edward Watts free, at which time she is described as "a freeman's widow".)

READ - see REED X

REDWOOD, Richard (493)

A 1706, released 1708

1 July 1706: son of Richard Redwood late of Bristol, shipwright decd, apprenticed to Philip I and Anne Calloway for 7 yrs; friends to find apparel.

7 April 1708: discharged from his apprenticeship by an Order of the Justices in the Mayoralty of William Whitehead Esq.

Tolzey Book entry indicates Redwood and his mother had asked for his release because he "hath a dislike for the said Trade"; he was to have no benefit from the time served but was to be eligible for re-apprenticeship in any profession.

REDWOOD, Thomas (494)

A 1733

11 June 1733: son of Abraham Redwood of Bristol, tobacco-cutter, apprenticed to John I and Anne Pearce for 7 yrs; friends to find apparel, 40s paid with apprentice the gift of Mr Ald. Kitchen.

REED, Edward (Read) (495)

A 1699, F 1706, Master of Company 1715, fl 1723, poss. fl 1735

27 June 1699: son of Thomas Reed late of Bristol, cooper decd, apprenticed to William I and Mary Tipper for 7 yrs.

29 June 1706: free having been apprenticed to William Tippet 1.

5 April 1715: he and wife Mary took over William Thomas II apprentice from Thomas and Anne Watts, at which time Reed Master of Pipemakers' Company.

9 November 1719: he and wife Mary took James Mathlen apprentice.

(13 March 1721/2: his apprentice Thomas Collins free.)

(31 December 1722: his apprentice William Thomas II free having been first apprenticed to Thomas Watts.)

11 April 1723: he and wife Mary took William Foord apprentice.

(18 November 1723: his apprentice Thomas Young I free.)

(3 May 1733: his apprentice William Foord free.)

12 May 1735: the signature "Edw Reed" in a mediocre hand appears unexplained on the Tolzey Book entry relating to the discharge of pipemaker apprentice John Short from master John Wickham; if Edward Reed was still alive and still Master of the Company at this time he may have signed in his official capacity, though if so this is the only occasion known among the Tolzey Book records relating to pipemakers. Short does not sign, which might perhaps be a reason for the Master of the Company to sign the record.

Surname more commonly appears as Read, but three pipe-bowl cartouches (one from Bristol, one from Caldy Island at Tenby, and one from the St Francis Xavier IV site at Caughnawaga nr Montreal) use the spelling Reed.

Brother, probably younger brother, of Thomas Reed (q.v.) apprenticed to William Tippet I's brother Robert Tippet II.

REED, Thomas (Read) (496)

A 1698

19 May 1698: son of Thomas Reed late of Bristol, cooper decd, apprenticed to Robert II and Sarah Tippet for 7 yrs.

Brother, probably elder brother, of Edward Reed (q.v.) apprenticed to Robert Tippet II's brother William Tippet I. Apprentice roll entry spells Thomas Reed's name and that of his father Read (as does the entry for Edward Reed); spelled here Reed to conform with preferred spelling of brother's name.

REECE - see also REES

X

REECE, Charles (497)

A 1814

1 March 1814: son of Thomas Reece of Bristol, carpenter, apprenticed to Samuel Richards [probably Samuel Richards III] and wife Susannah for 7 yrs; friends to find apparel and washing.

REECE, James (Rees) (498)

F 1774, fl 1784

4 October 1774: free because son of William Reece of Bristol, pipemaker decd.

1774 Polls - St James; voted for Cruger and Burke.

1781 Polls - ditto; voted for Daubeny.

1784 Polls - ditto; voted for Daubeny.

REECE, William (499)

A 1721, F 1739

4 May 1721; son of Jacob Reece of Bristol, labourer, apprenticed to John I and Eleanor Macey for 7 yrs; £6 paid with apprentice of which 40s was ex dono Ald. Kitchen decd and the remainder ex dono the Parishioners of Parish of St Mary Redcliff.

4 October 1739: free having been apprenticed to John Macey I.

1739 Polls - Temple; voted for Southwell.

(The William Rees [sic] recorded, also in Temple, in the 1774 Poll Book is almost certainly the William Rees F 1768 - q.v.)

REES - see also REECE X

REES, William (500)

F 1768, fl 1774

Apprenticeship record not found.

9 March 1768: free having been apprenticed to Israel Carey II.

1774 Polls - Temple; voted for Cruger and Burke.

REEVES, Abraham (501)

fl 1652

September 1652: founder-member of Bristol Pipemakers' Guild, Guild's charter claims all founding members were freemen or widows of freemen but no evidence that Reeves was ever a freeman pipemaker.

RENDALL, Edward - see RANDALL, Edward I X

REYNOLDS, John (502)

A 1656

19 May 1656: son of Thomas Reynolds of Carwan, Herefordshire, husbandman, apprenticed to John and Cicily Calloway for 7 yrs and 2 covenant yrs for which he was to have 2d (!).

REYNOLDS, John George (also Reynolds, G.) (503)

fl 1849-56

1849-53 New St (Matthews's Dir.)

1856 Prospect Place, Baptist Mills (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.).

1850 New St (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

RICH, Edward (504)

fl 1838-39

1838-39 New St (Matthews's Dir.).

RICH, Samuel (505)

fl 1879-81

1879-81 Albert Rd, St Philip's ["Pipemakers Arms" property] (Matthews's Dir. 1879, Wright's Dir. 1880-81).

RICHARDS, Henry (506)

F 1774 when in London, fl 1781 London

29 October 1774: free because son of Richard Richards of Bristol, pipemaker decd.

1774 Polls - Reddish Row, Wapping, Middlesex, LONDON [sic]; voted for Cruger and Burke.

1781 Polls - Reddish Row, St George, LONDON; voted for Cruger (vote corrected from Daubeny to Cruger in the Errata).

RICHARDS, Richard (507)

A 1703, F 1713, fl 1739, D by 1774

10 August 1703: son of Derick Richards of Bristol, gunsmith, apprenticed to Robert II and Sarah Tippet for 7 yrs.

6 August 1713: free having been apprenticed to Robert Tippet II.

1722 Polls - St Michael; voted for Earl and Elton.

1734 Polls - ditto; voted for Scrope and Elton.

1739 Polls - St James; voted for Southwell.

(24 June 1747: son Samuel Richards I (q.v.) free.)

Dead by 29 October 1774 when son Henry Richards (q.v.) free.)

RICHARDS, Samuel I (508)

A 1740, F 1747, poss. fl 1812

2 April 1740: son of Richard Richards of Bristol, pipemaker, apprenticed to Rebecca Arthurs widow of John Arthurs for 7 yrs. 40s paid with the apprentice the gift of Ald. Kitchen decd.

24 June 1747: free because son of Richard Richards of Bristol, pipemaker.

(6 October 1774: son Samuel Richards II (q.v.) free.)

Possibly still alive 6 October 1812 when grandson Samuel Richards III (q.v.) free because in Samuel III's freedom entry his father Samuel II is referred to as Samuel Richards "the younger" suggesting an "elder" Samuel (i.e. Samuel I) was still alive.

Directories list a Samuel Richards on Thomas St 1785-1817 but with no indication as to which Samuel - could have been Samuel II for all or part of this period (for more details see RICHARDS, Samuel II).

RICHARDS, Samuel II (509)

F 1744 when at Woolwich, M 1778?, returned to Bristol 1778?, fl Bristol 1781, fl 1812, prob. fl 1817

6 October 1774: free, referred to as "the younger", because son of Samuel Richards I of Bristol, pipemaker.

1774 Polls - Woolwich, KENT (mentioned by John Frederick Bryant II who worked for Richards ca.1774-75 (Bryant 1787: xvii-xviii); voted for Cruger and Burke.

1778?: John Frederick Bryant II records (Bryant 1787: xx-xxi) that Richards gave up his Woolwich business (presumably to return to Bristol - see below) "having married a young woman with some considerable expectations" (date of ca.1778 deduced from internal evidence of Bryant's account).

1781 Polls - St Thomas; voted for Cruger.

14 June 1783: presumably this Samuel Richards and wife Ann who took William Vinson apprentice.

1784 Polls - St Thomas; voted for Cruger and Brickdale.

1812 Polls - probably the Samuel Richards voting from Thomas St, St Thomas, the Samuel Richards voting from Avon St, Temple, being more likely Samuel Richards III (q.v.); both voted for Protheroe.

(1 March 1814: more likely Samuel Richards III and wife Susannah who took Charles Reece apprentice.)

1785 Thomas St (The Bristol Dir.).

1787 not listed.

1791 Thomas St (The Universal British Dictionary).
1792 ditto (New Bristol Dir.).

1794-95 ditto (Matthews's Dir.).

1797-98 ditto (ditto).

1800-01 ditto (ditto).

1803-11 34 Thomas St (ditto).
1812 54 Thomas St (ditto) - probably a misprint.
1813-15 34 Thomas St (ditto).
1816 31 Thomas St (ditto) - probably a misprint.
1817 34 Thomas St (ditto).

At least some of these directory entries may refer to Samuel Richards III (q.v.); Richards family kiln excavated by Marochan and Reed in 1957 (Marochan and Reed 1959: 122 n.1). Thomas St now St Thomas St.

1817 31 St Thomas St (The Bristol Index or Evans' Dir.) - not noted in this same directory for 1818 (cf entries above).

RICHARDS, Samuel III (510)

F 1812, prob. fl Bristol to 1817, fl Swansea 1830

6 October 1812: free because son of Samuel Richards "the younger" [Samuel Richards II] of Bristol, pipemaker.

1812 Polls - probably the Samuel Richards voting from Avon St, Temple, the Samuel Richards voting from Thomas St, St Thomas, being more likely Samuel Richards II (q.v.); both voted for Protheroe.

1 March 1814: probably this Samuel Richards and wife Susannah took Charles Reece apprentice.

Probably associated, at least latterly, with the family business appearing 1785-1817 at 34 Thomas St [now St Thomas St] in the various directories (see entries under RICHARDS, Samuel II).

1830 Polls - SWANSEA; voted for Davis and Baillie.

RICHARDS, Thomas (511)

A 1660

15 October 1660: son of Edward Richards late of Bristol, joiner decd, apprenticed to John and Joan Abbot for 7 yrs and 1 covenant yr for which he was to receive 10s (?).

RICHARDS, William (512)

A 1668

7 April 1668: son of John Richards of Gotrey, Monmouthshire, yeoman, apprenticed to William I and Margaret Williams for 7 yrs.

RICKETTS, John I (Ricket) (513)

A 1684, F 1706/7, fl 1715

3 September 1684: son of Robert Ricketts of Langbridge, Somerset, yeoman, apprenticed to John and Bridgett Griffin for 7 yrs.

22 January 1706/7: free having been apprenticed to John Griffin.

1715 Polls - St Nicholas.

RICKETTS, John II (514)

A 1703/4

20 March 1703/4: son of John Ricketts of Bristol, cordwainer, apprenticed to Robert I and Martha Williams for 7 yrs.

RICKETTS, Timothy (515)

F 1669

Apprenticeship record not found.

17 April 1669: free having been apprenticed to Hugh Lewis.

RING, Charles and Co - see RING, Richard Charles and Co X

RING AND COOKWORTHY (516)

fl 1802-17

4 September 1802: advertisement in Felix Farley's Journal (quoted in Pountney 1920: 259) indicating the establishment of this firm "Opposite George's Deal Yard, Temple Backs" and praying "the favours of Merchants, Captains and Ships, and Dealers in the above Article [pipes]"; orders were taken at 14 Bath St or at the Bristol Pottery in Water Lane, Temple St.

1810-15 Temple Back (Matthews's Dir.).
1816-17 Redcliff Backs (ditto).

1817 ditto (The Bristol Index, or Evans' Dir.).

Manufactory established by Robert Ring (q.v.) cousin of Joseph Ring II the potter (see Frank and Ring family tree under RING), and Frederick Cookworthy (q.v.) nephew of William Cookworthy the porcelain manufacturer. Frederick Cookworthy had married 11 August 1789 Sarah Ring (q.v.) a sister of Joseph Ring II; her address 1815-16 is 14 Bath St, one of the addresses given above where orders for the firm could be placed. Her being listed there 1815-16 suggests Frederick Cookworthy had died by that time, though the firm continues under the double name until 1817 (above); Pountney (p.259) says Ring continued the business "for many years" after Cookworthy's death but on the preceding page indicates Cookworthy left Ring at some point, the business thereafter concentrating solely on pipes instead of also making stoneware as formerly (no stoneware is noted in the September 1802 advertisement - above - however; the business is described as a "Tobacco-Pipe Manufactory"). When Ring retired he went to live at "The Farm" at St Anne's, Brislington according to Pountney (loc. cit.); no date is given for this. There are elements of confusion in the facts on both Ring and Cookworthy given by Pountney - for further discussion see RING, Robert; and COOKWORTHY, Frederick.

The directory entries also contain elements of confusion. Ring and Cookworthy appear to take the place of John Ring I (q.v.) in the entries for 1810-17, John Ring I being listed prior to 1810 (as John Ring and Co) at Temple Back and after 1817 at Redcliff Backs (cf entries above for Ring and Cookworthy), suggesting the directory compilers may have confused John Ring I and Ring and Cookworthy entries and addresses.

RING, John (also John Ring and Co) (517)

fl 1803-18, F 1806

1803 Temple Back (Matthews's Dir.) - as John Ring and Co.

1805-09 ditto (ditto) - ditto.
1810-17 not listed - place in entries appears to have been taken by Ring and Cookworthy (q.v.) noted at Temple Back 1810-15 and at Redcliff Backs (cf below) 1816-17 (Matthews's Dir.). This problem is discussed below, also under RING AND COOKWORTHY.
1818 Redcliff Backs, retail 46 Redcliff St (Matthews's Dir.) - as John Ring "pipe-manufacturer and Wholesale Staffordshire Earthenware warehouse".

21 August 1806: free having married Ann Morley daughter of John Provis of Bristol, baker decd [Ann presumably a widow].

1818 46 Redcliff St and Redcliff Backs (Bristol Index or Evans' Dir.) - not recorded in this same directory for 1817 (cf entries above), place taken by Ring and Cookworthy (see above).

It is assumed that the John Ring noted 1803-09 and the John Ring noted 1818 are the same person - he is not the Ring of Ring and Cookworthy despite the apparent replacement of John Ring by Ring and Cookworthy 1810-17; that Ring is Robert Ring, who is noted by Pountney (1920: 258) as a cousin of the potter Joseph Ring II (see Frank and Ring family tree under RING). If John Ring I is the John Ring a younger brother of Joseph II then Robert Ring is also a cousin of John Ring I. The problems with the Ring and Cookworthy firm are discussed under that entry, also under RING, Robert, and COOKWORTHY, Frederick.

RING, Richard Charles and Co (Also Charles and Co) (519)

fl 1862-1883 or 1884

1862 appears at Temple Back in general section trades section still lists John Ring and Son there (see RING, John and Son (II); listed as Charles Ring and Co (Matthews's Dir.).
1863-83 Temple Back (Matthews's Dir. to 1879, Wright's Dir. from 1880) - 1863 listed as Charles Ring and Co.

Also listed in trades section for 1884 but streets section lists Hawley and Son (q.v.) in their place suggesting the continuation of Ring into

1884 may be a compiler's mistake; however, Hawley was at Temple Back from 1875 which suggests he may not have taken over Ring's works even though he appears to have filled Ring's place among the pipemakers listed.

1863 ditto (Kelly's P.O. Bristol Dir.).

The firm lists itself as "export tobacco-pipe manufacturers" up to 1879, advertising as "cigar merchants" in 1880.

Probably this generation of the firm which occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953 (occurs simply as Ring at Temple Back in first list, occurs as R. Ring in second list).

(Subsequent to the drafting of this thesis a group of mid-C19 Ring-made bowls was recovered from Temple Back (Arch. Rev. 6 (1971) 47 s.v. Bristol - Temple Back).)

RING, John and Son (II) (518)

fl 1849-1861 or 1862

1849-61 Temple Back (Matthews's Dir.) - listed as "coal merchants and export tobacco pipe manufacturers".

Also listed in trades section in 1862 but general section lists Charles Ring and Co [sic - Richard Charles Ring and Co is meant, see RING, Richard Charles and Co] for this year suggesting the continuation of John Ring and Son into 1862 in the trades section is a compiler's error.

The son referred to in the firm's title is presumably the Richard Charles Ring who succeeds in 1861 or 1862 but definite evidence for the relationships of the later Rings to each other is at present lacking (see family tree).

With the change in management from Richard Frank Ring and Co (q.v.) to John Ring and Son in 1848 or 1849 the firm drops the phrase "Ohio tobacco-pipe manufacturers" they have used in their directory entries and replaced it with "export tobacco-pipe manufacturers", which phrase is used by John Ring and Son's successor, Richard Charles Ring and Co (q.v.) until 1879.

(Subsequent to the drafting of this thesis a group of mid-C19 Ring-made bowls was recovered from Temple Back (Arch. Rev. (1971) 47 s.v. Bristol - Temple Back).)

RING, Richard Frank (and Co) (sometimes simply Ring and Co) (520)

F 1802 as a potter, fl 1813-1848 or 1849

10 June 1802: free as a potter because son of Joseph Ring of Bristol, cabinet-maker decd (Pountney 1920: 346).

1813 Avon St, Gt Gardens [Temple] - orders left at Bristol Pottery (Matthews's Dir.).
1814 ditto - orders left at 14 Bath St [see RING, Sarah] (ditto).
1815 not listed.
1816-22 Spring Gardens, Avon St, Gt Gardens (ditto) - "Ohio tobacco-pipe manufacturers".
1823-30 Avon St, Gt Gardens (ditto) - "Ohio tobacco-pipe manufacturers"; 1825-30 simply Ring and Co.
1831-48 Temple Back (ditto) - "Ohio tobacco-pipe manufacturers"; appears simply as R.F. Ring (without the "and Co").

Also listed in trades section for 1849 but general section lists a Ring and Son [probably J. Ring and Son - see RING, John and Son (II)] for this year suggesting the continuation of Richard Frank Ring into 1849 is a compiler,s error.

1817-18 Ohio pipe manufactory, Spring Gardens, Avon St (Bristol Index or Evans' Dir.).

1837 Temple Back and Brislington, under Hensgrove House (Robson's Dir.).

1842 Ohio Manufactory, Temple Back (Pigot's Dir.).

1848 Temple Back (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.) - R.F. Ring and Son [sic - see above, probably a mistake for J. Ring and Son; see RING, John and Son (II)].

1852 ditto (Slater's (late Pigot's) Dir.) - Richard Frank Ring and Son "(export)" [again probably a mistake for J. Ring and Son].

1853 ditto (Scammell's Bristol General Dir.) - Rd. F. Ring and Son [again probably a mistake for J. Ring and Son].
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.) - Rd. F. Ring and Son [again probably a mistake for J. Ring and Son].

1835 Polls - Temple Back, Temple; voted for Baillie.

1852 Polls - "Pipe manufacturer", Brislington; listed under Temple; voted for McGeachy.

Despite references in Hunt, Slater, and the two Scammell directories suggesting Richard Frank Ring continued in business into the early 1850s it is probable the Matthews directory entries are correct and that Richard Frank Ring retired in 1849 or early 1850. That Richard Frank Ring lived past 1849 is indicated by his appearing in the 1852 polls (above); in the family reminiscences of a relative, Arnee Frank, written 1855 Richard Frank Ring, remembered as being "for several years a Pipe Maker, largely for export, chiefly for the American market" was believed to be living near the White Ladies with his son, a coal merchant (quoted in Pountney 1920: 161-2).

Ring family listed as coal merchants from 1816, when R.F. Ring is noted as Pottery Coal Wharf, Temple Back (at this time - see above - he was making pipes not at Temple Back but at Avon St in Temple, a street now occupied by Temple Way).

(Subsequent to the drafting of this thesis a group of mid-C19 Ring-made bowls was recovered from Temple Back (Arch. Rev. (1971) 47 s.v. Bristol - Temple Back).)

RING, Robert (521)

F 1760 as a hooper, fl 1792 apparently as a potter, estab. pipemaking business 1802 with Frederick Cookworthy, fl to 1817

4 September 1760: Pountney (1920: 342) lists a Robert Ring (a Quaker) in his appendix of Bristol Potters taking his freedom as a hooper having been apprenticed to Sarah Ring widow of Joseph Ring hooper.

28 September 1792: Robert Ring, potter, took three apprentices - William Distin, Benjamin Dungey, and Thomas Page (Pountney 1920: 317); in a note Pountney says Ring "was really a tobacco pipe maker", but none of these three apprentices are ever noted as pipemakers or pipemaker-apprentices.

4 September 1802: advertisement in Felix Farley's Journal for that date (quoted in Pountney 1920: 259) announces the establishment of the "Tobacco-Pipe Manufactory" of Ring and Cookworthy "Opposite George's Deal Yard, Temple Backs" (for more details see RING AND COOKWORTHY). The Ring partner is Robert Ring, "originally a tobacco pipe maker" (Pountney p.258), a cousin of Joseph Ring II the potter (see Frank and Ring family tree under RING); for Cookworthy see COOKWORTHY, Frederick. Ring also had a cooperage which became part of the Bristol Pottery December 1806 (presumably connected with his apprenticeship as a hooper - see above); the Bristol Pottery was one of the places where orders for Ting and Cookworthy pipes could be left. Pountney also mentions (pp258,259) Ring and Cookworthy producing stoneware (though the advertisement makes no note of it) and in one place (p.258) says that after Cookworthy left the business the production of stoneware ceased; however, he says on the next page "Robert

Ring carried on these works [the pipe-manufactory] for many years after the death of Cookworthy", which suggests Cookworthy died while with the firm, but no date is given. Again according to Pountney (p.259) Ring when he retired went to live at "The Farm" at St Anne's, Brislington, but no date is given here either. If the directory entries are correct (though they too have elements of confusion - see below) the business continued until 1817.

Matthews's directories for 1810-17 record the firm of Ring and Cookworthy, at Temple Back 1810-15 and at Redcliff Backs 1816-17; and the firm is also listed in the 1817 (but not 1818) edition of The Bristol Index, or Evans' Directory; there is possibly confusion by the directory compilers between Ring and Cookworthy and John Ring I (q.v.). For further details see RING AND COOKWORTHY; also COOKWORTHY, Frederick.

RING, Sarah (522)

fl 1815-16

1815-16 14 Bath St (Matthews's Dir.) - listed as a pipemaker as well as "China, Glass and Earthenware Warehouse, wholesale, retail and for exportation".

Married 11 August 1789 Frederick Cookworthy a nephew of William Cookworthy the porcelain manufacturer, the Cookworthy of Ring and Cookworthy, pipe-manufacturers (q.v.) - the Ring involved is Robert Ring (q.v.) a cousin of Sara Ring. The 1802 advertisement announcing the establishment of Ring and Cookworthy gives as one of the addresses at which orders with the firm could be left 14 Bath St, the address noted above for Sarah Ring. Probably a widow by 1815, hence return to maiden name (perhaps to make known her relationship to other members of the Ring family in the pottery and pipe business) though Ring and Cookworthy firm listed until 1817. According to Pountney (1920: 258) Cookworthy was also a haberdasher and worsted dealer in Union St and elsewhere in the city, being succeeded in the latter business by his widow, but no directory entries noted to confirm this. Sarah Ring's business continued to be run by the family, later at 8 High St, until 1860 according to directory entries, specializing as indicated above in the wholesaling, retailing and exporting of china, earthenware, and glass; Arnee Frank, a relative, reminiscing in 1855 (quoted in Pountney p.161) indicated the business had been run by Elizabeth and Sophia Ring (two sisters of Sarah), Elizabeth dying ca.1852 and Sophia ca.1853. (Elsewhere Pountney (p.258) refers to Frederick Cookworthy's wife as Susannah, but this must be an error - see also COOKWORTHY, Frederick.) 14 Bath St now owned by Courage's Brewery (FIGS 217-18); the kiln still survives in basement (FIGS 219-20).

ROACH, James (first name also appears as Jacob) (523)

A 1716/7, F 1727

7 January 1716/7: son of John Roach of Bristol, cordwainer, apprenticed to Thomas and Sarah Edwards for 7 yrs.

17 December 1717: turned over by consent of all parties and of the Master of the Company to Henry and Anne Hoar.

31 July 1727: free having been apprenticed first to Thomas Edwards and afterwards to Henry Hoar.

ROACH, John (524)

A 1673, F 1680/1

17 October 1673: son of William Roach late of Bristol, tiler decd, apprenticed to John I and Cicily Tucker for 7 yrs.

5 February 1680: free having been apprenticed to John Tucker I.

ROBERTS AND SON - see ROBERTS, Sarah X

ROBERTS

The various Robertses pipemakers in Bristol in the C19 present probably the most complicated problems of identification among all 700 Bristol pipemakers, chiefly because of conflicting trade directory entries (see following table).

The early entries, referring to Thomas Roberts, are relatively straightforward, as are the later entries referring to John Roberts; between the mid-1830s and the early 1850s, however, almost irreconcilable differences appear among directory entries, particularly between entries in the trades section and those in the general sections of the same directory. If one could assume these different entries were parallel readings, relationships could be made, but the known lack of accuracy in directory entries makes this dangerous (cf discussion in 6: VI). The major practical difficulties here are three: first, all the Robertses makers (with two late exceptions - T. Roberts and R. Roberts, both fl 1863) work in Gt George St but street numbers are often not given and where they are there is on the one hand evidence of makers moving premises and on the other hand of street renumbering; secondly, there are the known propensities for inaccuracies of directory readings and the tardiness in changing entries (particularly in changing entries in both or all sections to make them mutually agree and in removing overlapping entries); thirdly, it is difficult and sometimes impossible to relate isolated references to Robertses pipemakers (e.g. from freedom rolls and poll books) to those listed in the directories.

To illustrate the problems with examples, we may decide the 1834-35 S. Roberts and Sarah Roberts entries in the following table represent a pipemaking concern or concerns separate from and in business at the same time as the earlier Thomas Roberts, but this is only a guess - cases are known where the replacement entry has been listed as well as its predecessor because the latter entry had not been removed. However, is the S. Roberts of Gt George St the same as the Sarah Roberts of Ayer's Lane Gt George St? Could in fact there be two makers, S. Roberts and Sarah Roberts, both setting up about the same time, with the vagaries of directory compiling putting one in the trades section only and the other in the general section only? - this would explain the 1836-37 entries where S. Roberts and Sarah Roberts both appear in the trades section.

The Sarah Roberts in the trades section 1836-37 is listed at 14 Gt George St, the same address as that latterly given for Thomas Roberts (above); does this indicate Sarah Roberts was the successor - perhaps the widow - of Thomas? Taking the address as an indicator, the Roberts and Son noted at 14 Gt George St 1838-46 should be a continuation of Sarah Roberts's business, and when this business apparently moved to 20 Gt George St by 1849 it is presumably this business which is also noted as Sarah Roberts and Son, then as Sarah Roberts only, and then as John Roberts (the son in Roberts and Son?) 1854-65 and as Thomas Roberts 1866-1869 or 1870. If these suggestions are correct then a business sequence can be postulated as follows: Roberts and Steevens 1815; first Thomas Roberts 1816-33; his widow Sarah alone 1834-40; the widow in business with a son - Roberts and Son, Sarah Roberts and Son (but not S. Roberts and

Son - see below) - 1841-53; then the son alone - John 1854-65; then either another son or a grandson - second Thomas 1866-1869 or 1870 (see Roberts 2 family tree).

This however appears to leave a Sarah Roberts at Ayre's Lane Gt George St 1834-41 unaccounted for; and there is also an S. Roberts family listed on Gt George St from 1834 (number 17 from 1845) - S. Roberts and Son from 1838, S. Roberts again 1845-46, S. and James or S. and J. Roberts 1847-1852 or 1853. The S. Roberts is most likely to be Samuel Roberts F 1838 and voting in 1841 and 1852, James Roberts being his son. However, if the identification above of Sarah Roberts as the successor of the first Thomas Roberts on the basis of entries occurring for both of them at 14 Gt George St is correct there is clearly some confusion among the early S. Roberts-Sarah Roberts entries as listed in the directories. Unless it is assumed Sarah Roberts the successor of Thomas Roberts temporarily moved into Ayre's Lane from 14 Gt George St and later back to number 14, the easiest way out of the problem seems to be to assume the addresses of Sarah Roberts and S. Roberts got mixed up, just as the entry S. Roberts and Son for 1842-44 appears to have been erroneously equated by the directory compilers with Roberts and Son. This suggestion, of the two Robertses getting each other's addresses, gets some independent agreement from an entry of J. and J. Roberts in Robson's Directory of 1837 (see below).

The tentative conclusion therefore is that in 1834 there appears in the directories the Samuel Roberts F 1838 and there also appears Sarah Roberts the widow of the first Thomas Roberts. Because the Thomas Roberts entry is not removed for a couple of years there are double entries, Thomas and Sarah, referring to the same business; and to cap this the Ayre's Lane Gt George St address given for Sarah in these double entries is really the address of Samuel (S. Roberts) for this period before he moved to 17 Gt George St.

The various directories other than the Matthews series add their quota of obscurities to the understanding of the Roberts, though perhaps not in such a major way. The Arthur Roberts noted 1842 on Gt George St must be the Arthur Roberts F 1812 and recorded voting from Little George St in 1812, Eugene St in 1820, and Gt George St in 1830, 1832, and 1835, though he never appears in Mathews's directories. Two of his sons, both pipemakers, took their freedom in 1838 - one was Samuel, identified above as the S. Roberts, S. Roberts and Son, S. and James Roberts, and S. and J. Roberts fl 1834-1852 or 1853; the other was a Thomas, presumably the Thomas Roberts voting 1841 and 1852 (see Roberts 1 family tree). It seems extremely unlikely the latter could have been the Thomas Roberts fl 1816-34, whose dates would fit him better as a brother of Arthur Roberts rather than a son; chronologically he could be the Thomas Roberts fl 1866-1869 or 1870, but it has been postulated the latter belonged to the Thomas-Sarah-John Roberts business as a son or brother of John Roberts in which case his being a son of Arthur Roberts seems impossible (cf Roberts 1 and Roberts 2 family trees). The appearance of a Thomas Roberts presumably the Thomas F 1838 and voting in 1841 and 1852, in Slater's (late Pigot's) Directory for 1852 further tends to indicate this Thomas must have been separate from the Thomas Roberts working 15 and more years earlier than 1852 and the Thomas working 15 years later. Who the T.

Roberts recorded in Kelly's P.O. Bristol Directory for 1863 at Lamb St is is quite uncertain.

The recording of a J. and J. Roberts in 1837 in Ayre's Lane is a puzzle unless it is a misprint for S.and J. Roberts. If so, it would refer to the Samuel Roberts business noted above and thus furnish independent evidence for the suggestion above that the Matthews's directory compilers had confused the addresses of Sarah Roberts and S. Roberts in the 1834-37 entries giving Sarah the Ayre's Lane Gt George St address when they should have given that address for S. Roberts.

The Mary Roberts recorded in 1850 and 1853 is at present a mystery, unless she is the widow of Arthur Roberts F 1812, last recorded (in Gt George St) in 1842, whose wife was indeed called Mary. According to the Hunt 1850 directory entries, she appears in addition to the two other Roberts businesses hopefully disentangled above, S. and J. Roberts and John Roberts. All are noted on Gt George St, but no street numbers are given.

	TRADES SECTION	GENERAL ENTRIES
1815	Roberts and Steevens, George [sic] St	----
1816	Thomas Roberts and Co, Gt George St	----
1817-25	Thomas Roberts Gt George St	----
1826-31	Thomas Roberts, Gt George St	Thomas Roberts, 8 Gt George St
1832-33	Thomas Roberts, Gt George St	Thomas Roberts, 14 Gt George St
1834-35	(Thomas Roberts,) (Gt George St) (S. Roberts,) (Gt George St)	(Thomas Roberts, (14 Gt George St (Sarah Roberts, (Gt George St, Ayre's Lane
1836-37	(S. Roberts,) (Gt George St) (Sarah Roberts,) (14 Gt George St)	Sarah Roberts, Gt George St, Ayre's Lane
1838-41	(S. Roberts and Son,) (Gt George St) (Sarah Roberts,) (14 Gt George St)	(Sarah Roberts, (Gt George St, Ayre's Lane (Roberts and Son, (14 Gt George St
1842-44	S. Roberts and Son, Gt George St	Roberts and Son, 14 Gt George St

1845-46	(Roberts and Son,) (14 Gt George St) (S. Roberts,) (17 Gt George St)	N/A*
1847-48	Roberts and Son, Gt George St	S. and James Roberts, Gt George St
1849-51	Roberts and Son, 20 Gt George St S. and J. Roberts, 17 Gt George St	(Sarah Roberts and Son,)* (20 Gt George St) (S. and James Roberts,) (17 Gt George St)
1852	Roberts and Son, 20 Gt George St	(Sarah Roberts,) (20 Gt George St) (S. and James Roberts,) (17 Gt George St)
1853	Roberts and Son, 20 Gt George St	Sarah Roberts, 20 Gt George St
1854	Roberts and Son, 20 Gt George St	John Roberts, 20 Gt George St
1855	Roberts and Son, 20 Gt George St	John Roberts, 19-20 Gt George St
1856-63	John Roberts, 20 Gt George St	John Roberts 19-20 Gt George St
1864-65	John Roberts, 35-37 Gt George St	John Roberts, 35-37 Gt George St
1866-69	Thomas Roberts, 35-37 Gt George St	Thomas Roberts, 35-37 Gt George St
1870	Thomas Roberts, 35-37 Gt George St	no mention

1817-18 Thomas Roberts, Gt George St (The Bristol Index or Evans' Dir.).

1837 (Sarah Roberts and Co, Gt George St)
(J. and J. Roberts, Ayre's Lane, Gt George St) (Robson's Dir.).

1842 (Arthur Roberts, Gt George St)
(John Roberts, Gt George St) (Pigot's Dir.).
(Sarah Roberts, Ayre's Lane, Gt George St)

---

*N/A indicates directories for these years, also those for 1850 and 1851 (asterisked above), were not available for checking of general section entries, being away for rebinding for a protracted period.

1848 (S. and J. Roberts, Gt George St) (Hunt's Bristol and Welch
(John Roberts, Gt George St) Towns Dir.).

1850 (S. and J. Roberts, Gt George St)
(John Roberts, Gt George St) (Hunt's Bristol Dir.).
(Mary Roberts, Gt George St)

1852 (John Roberts, Gt George St)
(Sarah Roberts and Son, Gt George St) (Slater's (late Pigot's)
(Thomas Roberts, Gt George St) Dir.).

1853 J. Roberts, Gt George St (Scammell's Bristol Dir.).

1853 S. and J. Roberts, Gt George St (Scammell's Gloucester, Bristol and South Wales Dir.).

1856 John Roberts, 19 Gt George St (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.).

1863 J. Roberts, 37 Gt George St)
R. Roberts, New St) (Kelly's P.O. Bristol Dir.).
T. Roberts, Lamb St)

ROBERTS AND STEEVENS (525)

fl 1815

1815 George [sic] St (Matthews's Dir.).

Recorded for this year only: probably becomes the T. Roberts and Co noted in Gt George St 1816 which becomes T. Roberts I 1817-34 (see both under ROBERTS, Thomas I) and thereafter Sarah Roberts (and variants), John Roberts, and Thomas Roberts III (qq.v.).

ROBERTS, Arthur (526)

F 1812, fl 1842

12 October 1812: free having married Mary daughter of William Tovey of Bristol, presser.

1812 Polls - Little George St, St Philip and Jacob Out-parish; voted for Protheroe and Hunt.

1820 Polls - Eugene St, St Philip and Jacob Out-parish; voted for Davis and Bright.

1830 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Protheroe and Vyvyan.

1835 Polls - ditto; voted for Vyvyan and Miles.

(14 August 1838: his sons Samuel Roberts and Thomas Roberts I both free.)

1842 Gt George St (Pigot's Dir.).

See also preceding introduction on Roberts pipemakers.

ROBERTS, J. and J. - probably an error for ROBERTS, S. and J.; see ROBERTS, James, also ROBERTS, Samuel X see also preceding introduction on Roberts pipemakers.

ROBERTS, James (also Roberts, S. and J.; Roberts, S. and James; Roberts, J. and J. [sic]) (527)

fl 1837-1852 or 1853

1837 Ayre's [Eyer's] Lane, Gt George St (Robson's Dir.) - entry reads J. and J. Roberts, probably an error for S. and J. Roberts - see also ROBERTS, Samuel.

1847 10 George St (Matthews's Dir.) - general section only.
1848 19 Gt George St (ditto) - general section only.
1849-52 17 Gt George St (ditto) - as S. and James Roberts; 1852 entry in general section only.

1852 Polls - Pennywell Rd, St Philip and Jacob Out-parish; voted for Berkeley and McGeachy.

1853 Gt George St (Scammell's Bristol and South Wales Dir.) - as S. and J. Roberts.

1848 ditto (Hunt's Bristol and Welch Towns Dir.) - as S. and J. Roberts.

1850 ditto (Hunt's Bristol Dir.) - as S. and J. Roberts.

(1853 ditto (Scammell's Bristol General Dir.) - a J. Roberts noted, could be either James Roberts or John Roberts (q.v.).)

See also preceding introduction on Roberts pipemakers.

ROBERTS, John (528)

fl 1842-65

1842 Gt George St (Pigot's Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

1850 ditto (Hunt's Bristol Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 ditto (Scammell's Bristol General Dir.) - a J. Roberts noted, could be either John Roberts or James Roberts (q.v.).

1854 20 Gt George St (Matthews's Dir.) - general section only.

1855 19-20 Gt George St (ditto) - general section only.
1856-63 ditto (ditto).
1864-65 35-37 Gt George St (ditto) - change of street numbering.

1852 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Berkeley and Langton.

1856 19 Gt George St (Gloucestershire, Herefordshire, and Shropshire P.O. Dir.).

1863 37 Gt George St (Kelly's P.O. Bristol Dir.) - as J. Roberts.

See also preceding introduction on Roberts pipemakers.

ROBERTS, Mary (529)

fl 1850-53

1850 Gt Ann St (Hunt's Bristol Dir.).

1853 Gt George St (Scammell's Bristol, Gloucester and South Wales Dir.).

See also preceding introduction on Roberts pipemakers.

ROBERTS, R. (530)

fl 1863

1863 New St (Kelly's P.O. Bristol Dir.).

ROBERTS, S. - see ROBERTS, Samuel X

ROBERTS, S. and Son - see ROBERTS, Samuel X

ROBERTS, S. and J. - see ROBERTS, Samuel, also ROBERTS, James X

ROBERTS, S. and James - see ROBERTS, Samuel, also ROBERTS, James X

ROBERTS, Samuel (Also S. Roberts, S. Roberts and Son, S. and James Roberts, S. and J. Roberts, J. and J. Roberts [sic]) (531)

fl 1834-1852 or 1853, F 1838

1834-37 entry appears as "S. Roberts, Gt George St" but almost certainly confused with that of Sarah Roberts (q.v.) and correct address should be that given for her - Ayre's [Eyer's] Lane, Gt George St (Matthews's Dir.).
1838-41 "Gt George St" in trades section, Gt George St Ayre's Lane in general entries (Matthews's Dir.) - latter entry presumably continuation of confusion above, trades section address may indicate a change from Eyer's Lane (cf below) or be simple a continuation of the previous muddle (above). Listed as S. Roberts and Son.
1842-44 Gt George St (Matthews's Dir.) - as S. Roberts and Son.
1845-46 17 Gt George St (ditto) - as S. Roberts.
1847-52 Gt George St, also 17 Gt George St (ditto) - as S. and J. Roberts, also as S. And James Roberts.
1853 Gt George St (Scammell's Gloucester, Bristol and South Wales Dir.) - as S. and J. Roberts.

1837 Ayre's [Eyer's] Lane, Gt George St (Robson's Dir.) - entry reads J. and J. Roberts, probably an error for S. and J. Roberts - see also ROBERTS, James.

14 August 1838: free because son of Arthur Roberts of Bristol, pipemaker.

1841 Polls - Gt George St, St Philip and Jacob Out-parish; voted for Miles and Fripp.

1850 Gt George St (Hunt's Bristol Dir.) - as S. and J. Roberts.

1852 Polls - Gt George St, St Philip and Jacob Out-parish; voted for McGeachy.

The doubt as to whether the last year this business functioned was 1852 or 1853 (as expressed in the heading dates) is because Scammell's Gloucester, Bristol and South Wales Directory for 1853, the source for the 1853 date, may not be as up-to-date as the Matthews's series and the latter gives 1852 as the last recorded date for the business. That Samuel Roberts was definitely alive in the latter year seems certain from his being listed in the 1852 polls, which were in July.

See also preceding introduction on Roberts pipemakers.

ROBERTS, Sarah (also Roberts and Son, Sarah Roberts and Son, Sarah Roberts and Co) (532)

fl 1834-53

1834-35 entry appears as "Sarah Roberts, Gt George St, Ayre's [Eyer's] Lane" (Matthews's Dir.) but almost certainly confused with that of S. Roberts (see ROBERTS, Samuel) and correct address should be that given for him - Gt George St. In all probability the address is in fact 14 Gt George St, this certainly being her address later (it is also the address of Thomas Roberts I (q.v.) whom she apparently succeeds, probably as his widow.)
1836-41 14 Gt George St in trades section, Gt George St Ayre's Lane in general entries (Matthews's Dir.) - latter entries probably a confusion with S. Roberts, cf above).
1842-44 14 Gt George St (Matthews's Dir.) - as Roberts and Son, in general entries only.
1845-46 14 Gt George St (ditto) - as Roberts and Son.
1847-48 Gt George St (ditto) - ditto.
1849-53 20 Gt George St (ditto) - trades section gives Roberts and Son, general entries give Sarah Roberts.

1837 Gt George St (Robson's Dir.) - as Sarah Roberts and Co.

1842 Ayre's Lane, Gt George St (Pigot's Dir.) - as Sarah Roberts, address almost certainly confused with that of S. Roberts (see entries above).

(1848 Gt George St (Hunt's Bristol and Welch Towns Dir.) - as John

Roberts (q.v.) who is apparently the son in the (Sarah) Roberts and Son entries.)

(1850 ditto (Hunt's Bristol Dir.) - as John Roberts, same remarks as in preceding entry.)

1852 ditto (Slater's (late Pigot's) Dir.) - double entries; one John Roberts (cf two preceding entries), the other Sarah Roberts and Son.

See also preceding introduction on Roberts pipemakers.

ROBERTS, Sarah and Co - see ROBERTS, Sarah X

ROBERTS, Sarah and Son - see ROBERTS, Sarah X

ROBERTS, T. (533)

fl 1863

1863 Lamb St (Kelly's P.O. Bristol Dir.).

How, and if, this Roberts fits in with the three Thomas Robertses (qq.v.) is quite uncertain.

ROBERTS, Thomas I (Thomas Roberts and Co) (534)

fl 1816-33

Probably the continuator of the business of Roberts and Steevens recorded for the single year 1815 at George [sic] St (see ROBERTS AND STEEVENS).

1816-25 Gt George St (Matthews's Dir.).
1826-31 8 Gt George St (ditto).
1832-33 14 Gt George St (ditto).

Continues to be listed 1834-35 at 14 Gt George St but this appears to be a case of overlapping entries, other evidence indicating Sarah Roberts (q.v.) had taken over this business in 1834.

1817-18 Gt George St (Bristol Index or Evans' Dir.).

See also preceding introduction on Roberts pipemakers.

ROBERTS, Thomas II (535)

F 1838, fl 1852

14 August 1838: free because son of Arthur Roberts of Bristol, pipemaker.

1841 Polls - Gt George St, St Philip and Jacob Out-parish.

1852 Gt George St (Slater's (late Pigot's) Dir.).

1852 Polls - Temple Back, Temple; voted for McGeachy.

For arguments as to why this Thomas Roberts is probably not the same as Thomas Roberts III see preceding introduction on Roberts pipemakers.

ROBERTS, Thomas III (536)

fl 1866-1869 or 1870

1866-69 35-37 Gt George St (Matthews's Dir.).
1870 ditto (ditto) - appears only in trades section.

For arguments as to why this Thomas Roberts is probably not the same as Thomas Roberts II see preceding introduction on Roberts pipemakers.

Probably this the T. Roberts who occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953 (address given as Gt George St).

Succeeded at 35 Gt George St by the George family (see entries under GEORGE, Thomas II); Thomas Gray (q.v.) also listed at 35 Gt George St for 1870 only.

ROBERTS, William (537)

fl 1830 Cardiff

1830 Polls - Cardiff; voted for Davis and Protheroe.

ROBINSON, Richard (538)

A 1741, F 1754, fl 1774

14 April 1741: son of Charles Robinson of Bristol, yeoman, apprenticed to William and Mary Nicholas for 7 yrs; friends to find apparel, £5 paid with the apprentice.

27 March 1754: free having been apprenticed to William Nicholas.

1754 Polls - St James; voted for Philipps and Beckford.

1774 Polls - ditto; voted for Brickdale and Cruger.

RUSSELL, Francis I (539)

F 1669, fl 1696

Apprenticeship record not found.

9 December 1669: free by order of the Mayor and Aldermen on his petition to the House that he was the apprentice of John Tucker.

4 September 1673: he and wife Alice took Stephen Bowrey apprentice (entry repeated under 4 November 1673, see BOWREY, Stephen), Bowrey discharged 28 March 1674 "by consent of all".

18 May 1674: he and wife Alice took Samuel Lewis II apprentice.

1 October 1684: he and wife Alice took son Francis Russell II apprentice.

9 October 1684: he and wife Alice took son Prinino(?) Russell apprentice.

15 November 1688: he and wife Alice took William King apprentice.

19 December 1688: bondsman, noted only as of Bristol, in marriage licence for Samuel Palmer of Bristol, tapster, and Joyce Browne of Holy Cross alias Temple; place of marriage not stated (Hollis and Ralph (eds) 1952: 200).

(3 February 1695/6: his apprentice William King free.)

1696: noted with wife "Alis" and children Mary, Frances, Alice, Jane, Margaret, and Elizabeth in St Michael in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 127) - the "Frances" listed among the children probably Francis Russell II (q.v.), the son noted above; no mention of son Prinino (see above) who may therefore have been dead by this time.

(21 January 1698/9: son Francis Russell II (q.v.) free.)

RUSSELL, Francis II (540)

A 1684, F 1698/9

1 October 1684: son of Francis Russell I of Bristol, pipemaker, apprenticed to his father and wife Alice for 7 yrs.

1696: probably the "Frances" Russell listed along with five other children of Francis I and "Alis" Russell in St Michael in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 127).

21 January 1698/9: free having been apprenticed to his father Francis Russell I.

RUSSELL, Prinino(?) (541)

A 1684, prob. D by 1696

9 October 1684: son of Francis Russell I of Bristol, pipemaker, apprenticed to his father and wife Alice for 7 yrs.

Does not appear with other children of Francis I and Alice Russell in 1696 list of Bristol inhabitants (Ralph and Williams (eds) 1968: 127) nor elsewhere in this list, so probably dead by this time.

RUSSELL, William (Russel) (542)

A 1757, F 1768, fl 1774-84 London, poss. fl 1805 London

8 December 1757: son of Edward Russell of Bristol, exciseman, apprenticed to William and Elizabeth Commons for 7 yrs. £10 paid with apprentice the gift of the Somerset Society in Bristol.

24 February 1768: free having been apprenticed to William Commons decd.

1774 Polls - Artichoke Lane, Hermitage, Wapping, LONDON; voted for Cruger and Burke.

1781 Polls - Green Bank, St John, Wapping, LONDON; voted for Daubeny.

1784 Polls - Green Bank, St John, Westminster [sic], LONDON; voted for Brickdale and Daubeny.

Possibly the William Russell noted in London 1805 (Oswald 1960a: 91).

SANDERS AND DOWN (Sanders and Downs) (543)

fl 1839-49

1839-48 19 Gt Ann St (Matthews's Dir.).
1849 10 Gt Ann St (ditto).

1842 Gt Ann St (Pigot's Dir.) - as Sanders and Downs.

1848 55 Gt Ann St (Hunt's Bristol and Welch Towns Dir.).

For more details see SAUNDERS, James; also DOWN, James.

SANDERS AND BUY (544)

fl 1850-60

1850-60 10 Gt Ann St (Matthews's Dir.).

1850 Gt Ann St (Hunt's Bristol Dir.).

1853 ditto (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

For more details see SAUNDERS, James; also GUY, Philip.

SANKEY, Thomas (545)

A 1668

17 April 1668: son of Thomas Sankey of Bristol, yeoman, apprenticed to Flower and Christian Hunt for 7 yrs.

SAUNDERS, James (Sanders [sic] and Down(s), Sanders [sic] and Guy) (546)

A 1777, F 1812, fl 1815-(?)60 - cert. alive 1841

27 July 1777: son of James Saunders of Bristol, potter, apprenticed to Richard Champion of Bristol, "china painter", and wife Judith, as a china painter (Pountney 1920: 315). (Elsewhere in apprentice rolls Champion referred to variously as china manufacturer, china merchant, etc according to Pountney op. cit. 312-5.)

13 October 1812: free as a tobacco-pipe maker, having been apprenticed to Richard Champion, "china painter" decd.

1815 Ann [sic] St (Matthews's Dir.).
1816-24 no mention.
1825-31 39 Gt Ann St (Matthews's Dir.).

1832-38 19 Gt Ann St (ditto).
1839-48 ditto (ditto) - as Sanders [sic] and Down (see also DOWN, John).
1849 10 Gt Ann St (ditto) - as Sanders and Down.
1850-60 ditto (ditto) - as Sanders and Guy (see also GUY, Philip).

1818 Polls - Gt Ann St, St Philip and Jacob Out-parish; voted for Baillie.

1820 Polls - ditto; voted for Bright.

1830 Polls - ditto; voted for Protheroe.

1832 Polls - ditto; voted for Protheroe and William.

1835 Polls - ditto; voted for Baillie and Hobhouse.

1837 Polls - ditto; voted for Berkeley.

1841 Polls - ditto; voted for Berkeley.

1842 Gt Ann St (Pigot's Dir.) - as Sanders and Downs [sic].

1848 55 Gt Ann St (Hunt's Bristol and Welch Towns Dir.) - as Sanders and Down.

1850 Gt Ann St (Hunt's Bristol Dir.) - as Sanders and Guy.

1853 ditto (Scammell's Bristol General Dir.) - as Sanders and Guy.
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.) - as Sanders and Guy.

Apprenticeship, freedom, and poll book entries consistently spell the name Saunders, trade directories always spell it Sanders.

Listed 1826-28 in general entries as a maltster, no mention of pipemaker in these entries.

Assuming Saunders was apprenticed in his early teens he must have been born ca.1762, so that if he was indeed alive as in 1860 as the directory entries suggest he must have died when almost 100 yrs old (the 1861 directory entry lists Philip Guy alone at 10 Gt Ann St). The poll book entries indicate Saunders must have been alive until at least 1841 (when he would have been ca.80); however a possibly significant entry is that in Slater's (late Pigot's) directory for 1852-53 which lists only Philip Guy at Ann [sic] St, suggesting the firm's name of Sanders and Guy had been continued in the Matthews's directories after Saunders's death.

SAUNDERS, Richard (547)

A 1677, F 1685, fl 1715

25 June 1677: son of Richard Saunders late of Bristol, mariner decd, apprenticed to William and Mary Kinton for 7 yrs and 1 covenant yr.

11 December 1685: free having been apprenticed to William Kinton.

1715 Polls - St James.

SCOTT, William (Scot) (548)

A 1685, F 1707/8, fl 1715

19 May 1685: son of Andrew Scott late of Bristol, mariner decd, apprenticed to William and Mary Kinton for 7 yrs.

23 February 1707/8: free having been apprenticed to William Kinton.

1715 Polls - St. Thomas.

SHEFFIELD AND HAYNES (549)

fl 1809-12

Partnership of James Sheffield (q.v.) and an otherwise unknown Haynes (see HAYNES, -) recorded at 2 Merchant St between the above dates (Matthews's Dir.). Business continues under James Sheffield alone.

SHEFFIELD, James (Sheffield and Haynes) (550)

fl 1809-15

1809-12 2 Merchant St (Matthews's Dir.) - as Sheffield and Haynes.
1813-16 1-2 Merchant St (ditto) - as James Sheffield; also listed as a dealer in tobacco 1813-14 and a grocer 1815-16.
1817 1 Merchant St (ditto) - also listed as grocer.
1818-20 listed as a tobacconist, grocer, and pipe-manufacturer at 1 Merchant St and as a broker at 2 Merchant St (ditto); 1820 entry in general section only.
1821-25 1 Merchant St (ditto) - listed as tobacconist, pipemaker, and broker; entries in general section only.

SHEPPARD, Robert (Shepherd) (551)

A 1660, F 1669, fl 1690

1 September 1660: son of John Sheppard of Bristol, butcher decd, apprenticed to Flower and Christian Hunt for 7 yrs.

8 October 1669: free having been apprenticed to Flower Hunt.

24 October 1670: he and wife Margaret took William Bruin apprentice (16 October 1675 Sheppard allowed to take another apprentice, Bruin having "departed secretly from his said Master & Mistress" about a year and a half before).

20 October 1675: he and wife Alice took William Dean apprentice [presumably the replacement for Bruin allowed him four days earlier - see preceding entry].27 October 1690: he and wife Alice took John Pickering apprentice.

(3 April 1700: his apprentice John Pickering free.)

SHINGLER, Mat(t)hew (552)

A 1715, F 1735

29 August 1715: son of Matthew Shingler late of Newnham, Gloucestershire, mariner decd, apprenticed to William I and Mary Tippet for 7 yrs; friends to find apparel.

2 April 1725: free having been apprenticed to William Tippet I.

16 October 1725: he and wife Hester took John Jones apprentice.

(23 April 1733: his apprentice John Jones free.)

SHORT, John (553)

A 1734, released 1735

1 April 1734: son of John Short of Bristol, house-carpenter, apprenticed to John and Hester Wickham for 7 yrs; £3 charity money paid with the apprentice.

12 May 1735: discharged by mutual agreement between him and his friends and Wickham having declared "a Dislike to the said Trade"; to have "no Right or Benefit of the Freedom of this City".

SHOWELL, William (554)

fl 1775, A 1776, F 1784 when in London

1775 12 Houlton St (Sketchley's Dir.).

1 November 1776: son of William Showell of Bristol, cordwainer, apprenticed to Israel Carey II for 7 yrs; 40s paid with the apprentice the gift of Mr Ald. Kitchen decd.

19 April 1784: free because son of William Showell of Bristol, cordwainer.

1784 Polls - Whitecross St, St Luke, LONDON; voted for Cruger.

Brother-in-law of James Carrington (q.v.).

In business before being apprenticed.

SILCOCKS, Jacob (555)

A 1670, F 1679/80

27 August 1670: son of John Silcocks of Wickwar, Gloucestershire, carpenter, apprenticed to William and Mary Kinton for 7 yrs.

14 January 1679/80: free having been apprenticed to William Kinton.

SIMMONDS, John Wit (556)

A 1716, alive 1717/8

23 April 1716: son of John Simmonds of Bristol, mason, apprenticed to John and Mary Wilson for 7 yrs.

11 February 1717/8: turned over to serve remainder of term with James and Mary Jenkins.

Tolzey Book entry indicates Simmonds had "lately made divers Complaints" to the Mayor and Aldermen that Wilson had "of late frequently beaten and bruised [him] in a barbarous and cruel manner without any just cause or provocation, threatening to sacrifice [sic] him, calling him ill names, and cursing him so that he cannot live at peace with his s^{d} Master but goes in dread of his life of him, the s^{d} John Wilson being often drunk and very passionate". Simmonds also complained Wilson did not give him food and drink. Wilson was summoned to appear before the Mayor to defend himself against these charges but could not justify his behaviour. He was ordered to desist from further violence, but as he "appeared obstinate and refractory and there appearing no likelyhood that he will forbear such cruel treatm^{t}" of Simmonds the Mayor ordered Simmonds transferred to James and Mary Jenkins, Jenkins promising to "perform all such covenants" that Wilson and his wife should have performed and pay money as promised in the original indentures [no money noted in the apprenticeship entry recorded above, however].

Simmonds signs the Tolzey Book account with a very laboured hand (his father is presumably the John Simmonds who makes his mark above his son's signature); Jenkins signs with an assured hand.

SINDERLIN - see also SINDERLING, and SUNDERLAND X

SINDERLIN, Edward (Synderlin, Senderlin, Synderlain, Sinderland, Sunderland) (557)

A 1726, F 1739, fl 1775

25 April 1726: son of John Sinderlin late of Bristol, weaver decd, apprenticed to John I and Eleanor Macey for 7 yrs' friends to find apparel, 40s paid with apprentice ex dono Ald. Kitchen.

9 October 1739: free having been apprenticed to John Macey I decd.

1739 Polls - Temple; voted for Southwell.

1754 Polls - ditto; voted for Philipps and Beckford.

13 January 1766: he and wife Mary took Henry Carey apprentice.

(9 March 1768: his son William Sinderlin [Synderlain] free.)

1775 94 Temple St (Sketchley's Dir.) - as Sunderland.

SINDERLIN, William [Synderlain] (558)

F 1768

9 March 1768: free because son of Edward Sinderlin [Synderlain] of Bristol, pipemaker.

SINDERLING, Edmond (Sinderlin;first name also appears as Edmund) (559)

A 1683, F 1691/2, fl 1698, D by 1713 (prob. ca.1699-1700)

27 August 1683: son of Edmond Sinderlin of Bristol, porter, apprenticed

to John and Mary Sinderling for 7 yrs.

12 March 1691/2: free having been apprenticed to John Sinderling.

15 September 1692: he and wife Christian took John Hockaday apprentice (Hockaday discharged 11 October 1693).

13 March 1693/4: he and wife Christian took Isaac Lloyd apprentice.

25 November 1698: he and wife Christian took Francis Wise apprentice.

Dead by 17 August 1713 when his apprentice Isaac Lloyd free having been apprenticed first to Edmond Sinderling decd and later turned over to James Abbott (in fact must have been dead considerably before 1713, probably ca.1699-1700, because Lloyd apprenticed 1693/4 (above) for 7 yrs which means his apprenticeship would have been up 1700/1, so transfer to Abbott must have been before then.

SINDERLING, John (Sinderlyn, Sinderlinge, Sunderlin) (560)

A 1653, F 1668, fl 1696, D by 1699 (presum. shortly before 7 November 1699)

5 December 1653: son of John Sinderling [Sinderlyn] of Bristol, clothworker, apprenticed to Flower and Christian Hunt for 7 yrs; Hunt (apparently) to pay his 4s6d freedom fee and to supply double apparel and apprentice to serve 1 covenant yr for which he was to receive £3 or a mule to that value and a cloth cloak.

5 August 1668: free having been apprenticed to Flower Hunt.

23 August 1677: he and wife Mary took Thomas Lewis I apprentice.

27 August 1683: he and wife Mary took Edmond Sinderling apprentice.

(10 December 1685: his apprentice Thomas Lewis I free.)

17 September 1688: he and wife Mary took Charles Chick apprentice.

4 September 1689: he and wife Mary took Edward Randall II apprentice.

26 May 1690: bondsman, noted only as of Bristol, in marriage licence for Morris Williams of Bristol, sailor, and Mary Palmer of St Nicholas; at Temple (Hollis and Ralph (eds) 1952: 210).

(12 March 1691/2: his apprentice Edmond Sinderling free.)

20 July 1694: bondsman, noted only as of Bristol, in marriage licence for William Smart of Bristol, sailor, and Mary Graves of Temple; at Temple (Hollis and Ralph (eds) 1952: 255).

17 September 1694: he and wife Mary took Robert Browning I apprentice.

26 February 1695/6: he and wife Mary took Nathaniel Chilton apprentice.

1696: noted as Joan [sic] Sinderling with wife Mary, daughter Elizabeth, and Robert Browning and Nathaniel "Chilken" [sic - Chilton] - apprentices, see above - in Temple in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 249).

(7 April 1697: his apprentice Charles Chick free.)

(29 June 1699: his apprentice Edward Randall II free.)

Dead by 7 November 1699 when Nathaniel Chilton transferred to Joseph I and Jane Stanford for this reason - presumably died shortly before 7 November 1699.

(24 May 1703: Nathaniel Chilton free having been apprenticed first to John Sinderling and later turned over to Joseph Stanford I.)

SLADE, Richard (561)

fl 1734

1734 Polls - St Mary Redcliff; voted for Coster.

SLEDGE, Samuel (562)

A 1681/2, F 1692, D by 1724

2 January 1681/2: son of William Sledge of Batcombe, Somerset, baker, apprenticed to James and Anne Abbott for 7 yrs.

9 April 1692: free having been apprenticed to James Abbott.

Dead by 23 April 1724 when son John apprenticed to Jonathan Green of Bristol, ropemaker, and wife Sarah.

SMITH, - (563)

D by 1652

Presumably a pipemaker, the presumed deceased husband of Christian Smith (q.v.) who is listed among the founder-members of the Bristol Pipemakers' Guild in September 1652 - not, however, specifically described as a widow as were the other two women founder-members. Guild's charter claims all founding members were freemen or widows of freemen but no evidence that Smith was ever a freeman pipemaker. (N.B. not the John Smith listed by Oswald (1960a: 92) noted in the Bristol apprentice rolls in 1630 - this an error from Pountney's MS via Chalkley (cf p. 663 in text) for a reference, actually dated 1630/1, to John Wall (q.v.).)

SMITH, Ann(e) (564)

M by 1651/2, widowed bet. 1654 and 1672, fl 1696

Widow of Thomas Smith I, married by 4 February 1651/2 when husband and she took William Holbin apprentice, widowed between 23 December 1654 when husband and she took Joseph Barley apprentice and 2 November 1672 when she took son Thomas Smith II apprentice and referred to as widow.

2 November 1672: took son Thomas Smith II apprentice and referred to as widow of Thomas Smith I.

16 February 1680/1: took son Edward Smith apprentice.

23 September 1689: took Henry West apprentice.

1696: noted as widow, with Henry West - her apprentice, see preceding entry - in Christchurch in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 27).

(10 April 1700: her son and apprentice Edward Smith free 1700.)

(18 December 1704: her son and apprentice Thomas Smith II free 1700.)

SMITH, Christian (565)

fl 1652

September 1652: founder-member of Bristol Pipemakers' Guild - apparently a widow, presumably of an otherwise unknown pipemaker (see SMITH, -). Guild's charter claims all founding members were freemen or widows of freemen but no evidence that Christian Smith's presumed deceased husband was ever a freeman pipemaker.

SMITH, Edward (566)

A 1680/1, F 1700

16 February 1680/1: son of Thomas Smith of Bristol, pipemaker decd, apprenticed to Anne Smith his mother widow of Thomas Smith for 7 yrs.

10 April 1700: free having been apprenticed to his mother Anne Smith.

SMITH, Joseph (567)

A 1706

8 April 1706: son of Joseph Smith late of Bristol, currier decd, apprenticed to William I and Mary Tippet for 7 yrs.

SMITH, Robert (568)

F 1754

Apprenticeship record not found.

29 March 1754: free having been apprenticed to Josias Wickham.

SMITH, Thomas I (Smyth) (569)

F 1651, fl 1654, D by 1672

24 May 1651: free by express order of the Mayor and Aldermen with a fine of 40s plus ordinary fees [4s6d].

4 February 1651/2: he and wife Anne took William Holbin apprentice.

September 1652: founder-member of Bristol Pipemakers' Guild.

23 December 1654: he and wife Anne took Joseph Barley apprentice.

Dead by 2 November 1672 when his widow Anne took their son Thomas II apprentice.

Widow Anne (q.v. SMITH, Anne) continued deceased husband's business, taking other apprentices 1680/1 and 1689, recorded 1696 with one of her apprentices.

SMITH, Thomas II (570)

A 1672, F 1704, fl 1715

2 November 1672: son of Thomas Smith of Bristol, pipemaker, apprenticed to Anne Smith widow of Thomas Smith I for 7 yrs and 1 covenant yr at the end of which he was to have 5s.

18 September 1704: free having been apprenticed to his mother Anne Smith.

1715 Polls - Christchurch.

SMITH, William (571)

F 1756, fl 1774 Bristol, fl London 1781

Apprenticeship record not found.

24 February 1756: free having been apprenticed first to John Bryant decd and later to George Viner.

1774 Polls - St John; voted for Brickdale.

1781 Polls - Chick Lane, St Andrew, Holborn, LONDON; voted for Cruger.

SNEED, Richard (Sneyd) (572)

F 1713, fl 1715, D by 1731?

Apprenticeship record not found.

12 June 1713: free having been apprenticed to James Abbott.

1715 Polls - St James.

Possibly dead by 25 September 1731 when son Thomas apprenticed to James Bisse, joiner, and his wife Anne as father referred to as "late of Bristol"; not referred to, however, as actually deceased. (Friends were to find apparel for Thomas Sneed and £10 was paid with the apprentice ex dono Edw. Colston Esq.)

SPENCER, Jane (573)

M by 1734, fl later 1730s, D by 1738/9

Wife of William Spencer (q.v.), married by 16 August 1734 when she and William took Thomas Spencer apprentice. Subsequently William's business failed and he departed Bristol, leaving his wife and apprentice apparently to carry on as best they could. Later, but before 8 February 1738/9, Jane had died, for on that day apprentice Thomas Spencer (q.v.) and his friends had complained to the Mayor and Aldermen that Thomas was "destitute both of Instruction and maintenance". The implication seems to be that instruction and maintenance were being provided after William's departure as long as Jane was alive, suggesting that Jane continued with the remains of her husband's business (for more detail see SPENCER, William).

SPENCER, Thomas (574)

A 1734, alive 1738/9

16 August 1734: son of George Spencer of Bristol, brickmaker, apprenticed to William and Jane Spencer for 7 yrs.

8 February 1738/9: turned over to James and Mary Jenkins for the remainder of his term, his master having gone off and his mistress being dead.

Tolzey Book entry indicates his master William Spencer had failed and that William's wife Jane had subsequently died, leaving the apprentice "destitute both of Instruction and maintenance". The apprentice and his friends had complained to the Mayor and Aldermen, resulting in his transfer to James and Mary Jenkins.

Spencer signs the Tolzey Book account with a mark; Jenkins signs with an assured hand.

Thomas Spencer appears to have been a younger brother of his master William Spencer.

SPENCER, William (575)

A 1725, F 1734, left Bristol some time before 1738/9

2 November 1725: son of George Spencer of Bristol, bricklayer, apprenticed to John Squibb [no wife mentioned] for 7 yrs; friends to find apparel.

4 May 1734: free having been apprenticed to John Squibb.

16 August 1734: he and wife Jane took Thomas Spencer apprentice.

Left Bristol some time before 8 February 1738/9, for on that date his apprentice Thomas Spencer (above) was transferred to James and Jane Jenkins and the Tolzey Book account notes that William Spencer had failed and gone off and that after that his wife had died, leaving his apprentice "destitute both of Instruction and maintenance" - this suggests some time had elapsed between William Spencer's departure and the date his apprentice and his friends had requested the Mayor and Aldermen for a transfer.

William Spencer appears to have been an elder brother of his apprentice Thomas Spencer.

SPENDAR, Thomas (576)

A 1719/20

16 March 1719/20: son of Thomas Spendar of Marshfield, Gloucestershire, tailor, apprenticed to John and Eleanor Massey for 7 yrs; friends to find apparel £5 paid with the apprentice the gift of John Harrington Esq.

SQUIBB, John (577)

F 1704/5, fl 1734, fl 1739?

2 January 1704/5: free having married Mary daughter of William Hazell, butcher.

15 May 1705: he and wife Mary took Charles Buckler apprentice.

(7 August 1713: his apprentice Charles Buckler free.)

1715 Polls - St James.

29 June 1719: he [no wife mentioned] took Richard Chaffey apprentice.

1722 Polls - St Thomas; voted for Hart.

2 November 1725: he [no wife mentioned] took William Spencer apprentice.

(26 July 1727: his apprentice Richard Fowles free.)

(11 July 1727: his apprentice Richard Chaffey free.)

2 March 1732/3: he [no wife mentioned] took Peter Quarman I apprentice.

5 March 1732/3: he [no wife mentioned] took John Newton I apprentice.

(4 May 1734: his apprentice William Spencer free.)

1734 Polls - St James; voted for Coster.

22 May 1739: his apprentice Peter Quarman I turned over to William and Mary Foord "by consent of all parties", which last phrase suggests Squibb was alive at this time.

STANFORD, Joseph I (578)

A 1683, F 1691, fl 1722

25 June 1683: son of Thomas Stanford late of Bristol, cooper decd, apprenticed to James [sic - John I is meant] and Margaret Holstead for 7 yrs.

7 September 1691: free having been apprenticed to John Holstead I.

1696: noted with wife Jane, a Margery Lissence [servant?], and children John, Mary, and Joseph [Joseph Stanford II - q.v.] in Temple in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 248).

7 November 1699: he and wife Jane took over Nathaniel Chilton apprentice from John Sinderling decd [Sinderling (q.v.) had lived like Stanford in Temple, very near to him if the list of inhabitants is made by street].

(24 May 1703: Nathaniel Chilton free having been apprenticed first to John Sinderling and later to Joseph Stanford I.)

10 January 1703/4: he and wife Jane took Thomas Flower apprentice.

1722 Polls - St James; voted for Earl and Elton.

(27 July 1727: his son Joseph Stanford II (q.v.) free.)

STANFORD, Joseph II (579)

B by 1696, F 1727, fl 1734

1696: noted with parents Joseph I and Jane Stanford and brother John and sister Mary in Temple in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 248).

27 July 1727: free because son of Joseph Stanford I of Bristol, pipemaker.

1734 Polls - St James; voted for Coster.

STEPHENS, James I (580)

A 1708, F 1715, fl 1722

12 May 1708: son of James Stephens of Tintall, Monmouthshire, yeoman, apprenticed to James and Katherine Abbott for 7 yrs.

13 February 1715/6: free having been apprenticed to James Abbott.

1722 Polls - St Mary Redcliff; voted for Hart.

Presumably not this James Stephens but James Stephens II (q.v.) voting 1739 and 1754 and taking apprentices in the 1750s.

STEPHENS, James II (581)

A 1726, F 1739, fl 1759, D by 1774

25 April 1726: son of James Stephens of Bristol, sawyer, apprenticed to John and Charity Fryer for 7 yrs; friends to find apparel £4 paid with apprentice ex dono Parishioners of St Thomas within.

17 April 1732: turned over "by consent of all parties" to John and Hester Wickham.

1739 Polls - St Michael; voted for Southwell.

7 May 1751: he and wife Rebecca took Frederick Baker apprentice.

1754 Polls - Castle Precincts; voted for Philipps and Beckford.

18 June 1754: he and wife Rebecca took over George West apprentice from George and Anna Viner.

9 November 1756: he and wife Rebecca took Jeremiah Cotner apprentice (Cotner turned over 29 March 1759 to Israel Carey II "with consent of all parties and Mr Mayor", suggesting - as is confirmed below - that Stephens was alive at this time).

11 April 1759: he and wife Rebecca took Joseph Cousens apprentice.

Dead by 3 October 1774 when apprentice Joseph Cousens free.

Presumably this James Stephens who voted 1739 and 1754 and took apprentices in the 1750s and not James Stephens I (q.v.).

STEEVENS, - (582)

fl 1815

Otherwise unknown pipemaker of the firm of Roberts and Steevens recorded for the single year 1815 at George [sic] St (Matthews's Dir.). (The Roberts of the partnership is probably Thomas Roberts I (q.v.), whose business succeeds that of Roberts and Steevens at Gt George St.).

STEEVENS, Humphrey (583)

fl 1639

1 June 1639: he and wife Joan took William Williams I apprentice.

STOKES, Nicholas (584)

A 1669

29 December 1669: son of Nicholas Stokes of Thornbury, Gloucestershire, tailor decd, apprenticed to William Evans [either William Evans I or William Evans II; no wife mentioned] for 7 yrs and 4 covenant yrs.

STONE, Nathaniel (585)

A 1688, F 1699

6 October 1688: son of Mathew Stone of Wetherbury, Dorset, farmer, apprenticed to William Evans [either William Evans I or William Evans II] and wife Mary for 7 yrs.

3 November 1699: free having been apprenticed to either William Evans I or William Evans II.

STRINGER, William (586)

fl 1663/4

20 February 1663/4: bondsman, listed as of St Michael, in marriage licence for Maurice Stringer of Henbury, farmer, and Catherine Mayne of Henbury; at St Michael's (Hollis and Ralph (eds) 1952: 28).

STUCKLEY, Charles (587)

A 1707

10 July 1707: son of Charles Stuckley late of Bristol, tobacco-roller decd, apprenticed to Devereaux I and Rebecca Jones for 7 yrs.

Father not noted among the C17 tobacco-rollers listed by Tyack (1935b: 198).

SUNDERLAND, Edward - see SINDERLIN, Edward X

SUNDERLIN, John - see SINDERLING, John X

SUNDERLAND, John (588)

A 1715, F 1727

25 July 1715: son of John Sunderland of Bristol, weaver, apprenticed to Francis Lewis [no wife mentioned] for 7 yrs; friends to find apparel except for one suit at end of term, 40s paid with apprentice.

26 July 1727: free having been apprenticed to Francis Lewis.

SYMONDS, John (589)

A 1651

17 October 1651: son of John Symonds of Bristol, mason, apprenticed to Thomas Deane and wife [no name given] for 7 yrs.

SYMONS, Henry (590)

A 1680/1, dismissed 1684

21 February 1680/1: son of Henry Symons late of St John the Baptist parish, Bristol, cooper decd, apprenticed to John I and Cecely Tucker for 7 yrs.

21 August 1684: struck off by order of the (?)sessions.

SYMONS, Thomas (Symonds) (591)

fl 1834, F 1838

1834 74 Temple St (Matthews's Dir.).

13 August 1838: free because son of George Symons of Bristol, mariner decd.

SYNDERL[A]IN - see SINDERLIN and SINDERLING X

TAPPING, William (592)

A 1677

12 June 1677: son of Richard Tapping of Wel Newton, Monmouthshire, timberman, apprenticed to Richard and Anne Nunney for 7 yrs.

TAYLOR, Stephen (593)

A 1748, F 1756, fl 1784

1 September 1748: son of Joseph Taylor late of Bristol, hooper decd, apprenticed to William I and Susannah Pearce for 7 yrs.

19 February 1756: free having been apprenticed to William Pearce I.

1781 Polls - St James; voted for Cruger.

1784 Polls - St Michael; voted for Cruger.

TAYLOR, William (Tayler) (594)

A 1681/2, F 1688/9, fl 1706, D by 1721

11 February 1681/2: son of John Taylor of Bristol, tobacco-roller, apprenticed to Llewellin and Elizabeth Evans for 7 yrs.

18 February 1688/9: free having been apprenticed to Llewellin Evans.

1 July 1700: he and wife Bridgett took William Cullen apprentice.

22 July 1706: he and wife Bridgett took over John Buckeridge apprentice from Devereaux I and Rebecca Jones.

(4 July 1707: his apprentice William Cullen free.)

(Dead by 22 October 1721 when apprentice George Ebbery free.)

Father John Taylor (above) F 3 February 1680 son of John Taylor of Bristol, shearman (Tyack 1935b: 198).

THATCHER, Anthony (595)

F 1701/2

Apprenticeship record not found.

28 February 1701/2: free having been apprenticed to John Poyte I.

THOMAS, Edward (596)

F 1838, fl 1852

14 August 1838: free because son of William Thomas III of Bristol, pipemaker.

1839-44 20 Little George St (*Matthews's Dir.*).

1852 Polls - Little George St, St Philip and Jacob Out-parish; voted for McGeachy.

1841 Polls - ditto; voted for Miles.

1842 Little George St (*Pigot's Dir.*).

Succeeds his father William Thomas III (q.v.) at 20 Little George St.

THOMAS, John (597)

A 1733, F 1743, fl 1754

21 April 1733: son of Miles Thomas of Cardigg, tailor, apprenticed to John Purnell [no wife mentioned] for 7 yrs; £10 paid with the apprentice the gift of the Society of Antient [sic] Britons in the City of Bristol.

1 June 1733: turned over by consent of all parties to Maurice and Elizabeth Phillips for remainder of term.

21 November 1743: free having been apprenticed first to John Purnell and later to Maurice Phillips.

1754 Polls - St James; voted for Phillips and Beckford.

THOMAS, Paul (598)

A 1680

26 June 1680: son of Thomas Rosser of Caerleon, Monmouthshire, labourer, apprenticed to William Evans [either William Evans I or William Evans II] and wife Mary for 7 yrs.

THOMAS, Philip (599)

fl 1818

1818 Polls - George [sic] St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

THOMAS, Thomas (600)

F 1739

24 October 1739: free having married Susannah daughter of Henry Edwards of Bristol, pipemaker.

1739 Polls - St John; voted for Combe.

THOMAS, William X

Father-in-law of Robert Tippet I, who had married his daughter J(o)ane and claimed his freedom 14 May 1660 by virtue of this. No occupation listed for William Thomas, but despite numerous Thomas pipemakers subsequently no evidence he was a pipemaker.

THOMAS, William I (601)

A 1713

26 September 1713: son of Michael Thomas of St George's parish, Somerset, yeoman, apprenticed to Robert II and Sarah Tippet for 7 yrs; £5 paid with the apprentice.

THOMAS, William II (602)

A 1713/4, F 1722, fl 1734, D by 1754

7 January 1713/4: son of Richard Thomas late of Bristol, mariner decd, apprenticed to Thomas and Anne Watts for 7 yrs; friends to find apparel.

5 April 1715: turned over by consent of himself and friends and of his master to serve the remainder of his apprenticeship with Edward Reed, Master of the Company, and his wife Mary.

31 December 1722: free having been apprenticed first to Thomas Watts decd and later turned over to Edward Reed.

1734 Polls - St Mary Redcliff; voted for Scrope and Elton.

Dead by 29 March 1754 when son-in-law George Adlam, potter, free having married his daughter Anne.

THOMAS, William III (603)

F 1807, fl 1837, D by 1838

1 May 1807: free having married Betsey daughter of John Tisher of Bristol, millwright.

1812 Polls - Lodge Ct, Redcross St, St Philip and Jacob In-parish; voted for Romilly and Davis.

1820 Polls - Little George St, St Philip and Jacob Out-parish; voted for Davis and Bright.

17 December 1824: he and wife Elizabeth [probably the Betsey referred to above] took Henry Walker apprentice.

1829 20 Little George St (Matthews's Dir.).

1830 Polls - Little George St, St Philip and Jacob Out-parish; voted for Davis and Baillie.

1832 Polls - ditto; voted for Baillie and Vyvyan.

1834-38 20 Little George St (Matthews's Dir.).

Dead by 14 August 1838 when son Edward Thomas (q.v.) free.

(20 August 1838: apprentice Henry Walker free, at which time William Thomas also noted as dead.)

1835 Polls - Little George St, St Philip and Jacob Out-parish; voted for Vyvyan and Miles.

1837 Polls - ditto; voted for Miles and Fripp.

Succeeded by son Edward Thomas (q.v.) in 1839 at same address.

TIDCOMB, John (604)

A 1723, F 1739

21 October 1723: son of John Tidcomb late of Bristol, mariner decd, apprenticed to Henry and Anne Hoar for 7 yrs; friends to find apparel,

40s paid with the apprentice ex dono Ald. Kitchen decd.

2 November 1739: free having been apprenticed to Henry Hoar decd.

1739 Polls - St James; voted for Southwell.

TILLETT, James (Tillitt) (605)

fl 1837-47

1837 New St (Robson's Dir.).

1840-45 ditto (Matthews's Dir.).
1846 Rich's Buildings, Redcross St (ditto).
1847 New St (ditto).

TIPPET X

This name is spelt in a variety of ways in the various documentary sources and is known in two forms on the pipes produced by these makers. The most common documentary spelling is Tippett, but the normal spelling on pipes is certainly Tippet. The products of J(o)ane Tippet, widow of Robert Tippet I the founder of the Tippet dynasty, consistently use the spelling Tipet but no pipes bearing the marks of either the Robert Tippets or of J(o)ane Tippet are known to this writer to have the surname spelt with a double t at the end. Further, the only pipe bowl known to carry the name of William Tippet (either William I, Robert II's younger brother, or William II, William I's son) also has the name spelt with a final single t despite documentary references to both Williams consistently using the double-t form. In view of the consistency with which the spelling Tippet appears on products which cover about three-quarters of a century and on a variety of moulds including ones where the format of the name differs - R/TIPP/ET and R/TIP/PET - it was decided to use the spelling Tippet as being that preferred certainly by the Robert Tippets and probably (and from the point of view of this writer, conveniently) by the William Tippets also.

With the two John Tippets the only real reason for using the single-t spelling is ease of listing and referring to them, for the documentary sources again consistently use the double terminal t for them, their fathers, and in the case of John II, his son; and neither of these Tippet(t)s is known to be a relative of the Robert and William Tippets.

(According to Marochan, however (Marochan and Reed n.d.; also in litt. Omwake-Marochan correspondence, copies in writer's files), a pipe marked I/TIP/PET and others marked IT either in a cartouche or impressed facing the smoker were found at the Whitson St kiln site which from other finds there must have been a Robert Tippet family kiln; these were not seen by this writer and Marochan and Reed's suggestion they are products of J(o)ane Tippet, Robert I's widow, might be possible, but all identifiable J(o)ane Tippet material seen so far by this writer uses IR or I-R in the top line of the cartouche and the spelling TIP/ET for the surname; also one of the I/TIP/PET pipes illustrated and one of those with IT impressed facing the smoker are typologically far too late for J(o)ane Tippet, being mid-C18. It is also quite possible an R from a worn mould was mistaken for an I; this is very easy to do (see I. Walker 1971c: 114 fig 45 left for such an example).

For further discussion of the Tippet family see pp665 n.74 and 617-8 passim.

TIPPET, J(o)ane (Tippet, Tipet; first name also appears as Joan and John [sic]) (606)

M by 1660, widowed bet. 1680 and 1687, fl 1696

Married by 14 May 1660 when husband Robert Tippet I became free having married Joane daughter of William Thomas of Bristol (no occupation for latter noted).

Widowed between 18 June 1680 when she and her husband Robert I took son William I apprentice and 3 April 1687 when she took Aaron Phillips apprentice and referred to as widow of Robert Tippet I.

3 April 1687: took Aaron Phillips apprentice.

20 February 1689/90: son William Tippet I free at which time he is called an apprentice of Joane Tippet, though actually when apprenticed 18 June 1680 it was to both parents [this suggests Joane Tippet may have been widowed shortly after 1680].

1696: noted - as "John Tippet, widower" - with Robert Tippet II family in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 54); Tippets living in Lewin's Mead (Ralph in litt. 9 September 1970).

(28 October 1699: her apprentice John Quinton free - Quinton listed as a "servant" in the Robert Tippet II household in 1696 list of Bristol inhabitants noted above.)

Pipes bearing J(o)ane Tippet's name consistently have the surname spelt Tipet, the cartouche reading IR/TIP/ET or I-R/TIP/ET.

TIPPET, John I (Tippett) (607)

A 1691

7 April 1691: son of Joseph Tippet of Bristol, mariner decd, apprenticed to Francis Lewis and wife [not named].

TIPPET, John II (Tippett) (608)

A 1723, F 1734, fl 1754, D by 1766

6 November 1723: son of Richard Tippet of the hundred of Barton Regis, Gloucestershire, coaldriver, apprenticed to Charles and Mary Hickes for 7 yrs; friends to find apparel, £5 paid with the apprentice ex dono Samuel Perry, baker decd.

14 May 1734: free having been apprenticed to Charles Hickes.

1739 Polls - St Michael; voted for Combe.

1754 Polls - St James; voted for Philipps and Beckford.

Dead by 22 December 1766 when son Jonathan Tippet took his freedom as a baker.

TIPPET, Robert I (Tippett, Tippott) (609)

F 1660, fl 1680, D by 1687

14 May 1660: free because married Joane daughter of William Thomas of Bristol [no trade noted].

20 August 1660: he and wife Joan [sic] took John Beale apprentice.

9 November 1661: he and wife Joan [sic] took over William Evans II apprentice from Jane Wall.

(8 September 1675: his apprentice Thomas Watts free.)

(4 November 1678: his son Robert Tippet II free.)

18 June 1680: he and wife Joane took son William Tippet I apprentice.

Dead by 3 April 1687 when widow Joane Tippet (q.v.) takes Aaron Philip apprentice.

(20 February 1689/90: son and apprentice William Tippet I free, at which time recorded as having been apprenticed to his mother though in fact apprenticed (see above) to both parents - this entry could indicate Robert Tippet I had died shortly after 1680, his widow effectively training William I for most of his apprenticeship.)

TIPPET, Robert II (Tippett) (610)

B 1660?, F 1678, fl 1713, either he or son Robert Tippet III fl 1720

22 August 1660: probably the Robert son of Robert Tipat [sic] baptised at St James (parish registers).

4 November 1678: free because son of Robert Tippet I of Bristol, pipemaker.

14 May 1688: he and wife Sarah took Henry Rear [sic - presum. Henry Hoar, q.v.] apprentice.

1696: he and wife Sarah and children Robert III, Sarah, and Susanna together with "John" Tippet "widower" [sic - J(o)ane Tippet (q.v.) mother of Robert II and widow of Robert I] and "servants" John Quinton and Mary Holden [the first actually J(o)ane's apprentice, q.v. QUINTON, John] and Henry Hoar [Robert II's apprentice - see above] noted in St James parish in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 54).

19 May 1698: he and wife Sarah took Thomas Reed apprentice.

(22 July 1699: his apprentice Henry Hoar free.)

10 August 1703: he and wife Sarah took Richard Richards apprentice.

16 February 1709/10: he and wife Sarah took James Millsom apprentice.

(20 July 1713: his son Robert Tippet III free.)

(6 August 1713: his apprentice Richard Richards free.)

26 September 1713: he and wife Sarah took William Thomas I apprentice.

19 September 1720: either he or son Robert III and wife Mary took Richard Hemsley apprentice.

1696 list of Bristol inhabitants (noted above) list the Robert Tippet family immediately under the Richard Nunney family (see NUNNEY, Richard) with the William Tippet family (see TIPPET, William I - Robert II's brother) apparently nearby (Ralph and Williams (eds) 1968: 54, 55); all lived in Lewin's Mead by at least 1691 (Ralph in litt. 9 September 1970) and listed there 26 August 1702 when son John (second son of his to be called John) baptised at St James (parish registers). The Robert Tippet family appears to have had workshops in Whitson St and Rosemary St to judge by pipes and wasters found in these areas during urban removal; pipes recorded suggest a date range ca.1680-1760 for the former site while the latter had material dating from the end of the C17 into the earlier C18 including pipes bearing both Tippet and Henry Hoar (q.v. - F 1699; see also above) marks and Tippet and Isaac Evans (q.v. - F 1698) marks, indicating production at the beginning of the C18. The Robert Tippet family and their products are discussed in 6: VII(a) and VII(b) passim; one perplexing and unsolved problem is why there are no known references to the Robert Tippets after 1720 when their products both typologically and from well-dated North American archaeological contexts occur as late as the later 1750s.

TIPPET, Robert III (Tippett) (611)

B 1692?, F 1713, either he or father Robert Tippet II fl 1720

4 July 1692: probably the Robert son of Robert Tippit [sic] baptised at St James (parish registers).

1696: noted with parents Robert II and Sarah Tippet and sisters Sarah and Susanna in St James parish in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 54).

20 July 1713: free because son of Robert Tippet II of Bristol, pipemaker.

19 September 1720: either he or father Robert II and wife Mary took Richard Hemsley apprentice.

TIPPET, William I (Tippett, Tippitt, Tibbett) (612)

B 1662?, A 1680, F 1689/90, fl 1723/4, prob. fl 1727/8

21 November 1662: probably the William son of Robert Tipat [sic] baptised at St James (parish registers).

18 June 1680: son of Robert Tippet I of Bristol, pipemaker, apprenticed to father and his wife Joane Tippet.

20 February 1689/90: free having been apprenticed to Joane Tippet widow.

24 November 1690: married Mary Cornoer [sic] (St James parish registers).

10 July 1691: he and wife Mary took Philip Driver apprentice.

1696: he and wife Mary and children Sarah and William II and Mary Berrow [a servant?] and John Beale servant [poss. pipemaker John Beale A 1660 to Robert Tippet I - William I's father - and F 1680/1] noted in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 55).

27 June 1699: he and wife Mary took Edward Reed apprentice.

26 July 1700: he and wife Mary took James Jenkins apprentice.

8 April 1706: he and wife Mary took Joseph Smith apprentice.

(29 June 1706: his apprentice Edward Reed free.)

31 August 1706: he and wife Mary took Abraham Johnson apprentice.

(7 August 1707: his apprentice James Jenkins free.)

24 August 1709: he and wife Mary took John Bryant apprentice.

(10 August 1713: his son William Tippet II free.)

29 August 1715: he and wife Mary took Matthew Shingler apprentice.

(3 October 1716: his apprentice John Bryant free.)

1722 Polls - St James; voted for Earl and Elton.

(3 September 1722: his apprentice William Naylor free.)

10 June 1723: he and wife Mary took Thomas Dennis apprentice.

17 February 1723/4: he and wife Mary took John Wallis apprentice.

(2 April 1725: his apprentice Matthew Shingler free.)

14 April 1727: his apprentice Thomas Dennis turned over to William and Susannah Naylor "by consent of all parties", which last phrase suggests Tippet was alive at this time.

8 January 1727/8: his apprentice John Wallis turned over to James and Mary Jenkins "by consent of all parties", which latter phrase again suggests Tippet was alive at this time.

(The fact that twice within a year apprentices with William Tippet had been transferred and to former William Tippet apprentices suggests Tippet, who by this time would have been ca.65, may have been growing too old to run his business, in which case he may have died fairly shortly after the above entry.)

1734 Polls - either he or son William II (the latter probably) voting from St James; voted for Coster.

1739 Polls - ditto; voted for Southwell.

William Tippet family living in Lewin's Mead by 1691 (Ralph in litt. 9 September 1970).

Marochan (in litt.Omwake-Marochan correspondence, copies in writer's files) illustrates a fairly early type 9 bowl, spurred, with W/TIPPET and two dots below inside a typical Bristol cartouche on the right side found in the Whitson St area though not from the actual kiln presumed to have belonged to the Robert Tippet family (see under TIPPET, Robert II); the pipe was not seen by this writer.

TIPPET, William II (Tippett) (613)

B 1694?, F 1713, fl 1722, prob. fl 1739

10 December 1694: probably the William son of William Tippett [sic] baptised at St James (parish registers).

1696: noted with parents William I and Mary Tippet and sister Sarah in St James in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 55).

10 August 1713: free because son of William Tippet I of Bristol, pipemaker.

1722 Polls - St James; voted for Earl and Elton.

1734 Polls - either he or father William I (probably the former) voting from St James; voted for Coster.

(26 June 1738: his son Robert apprenticed to John Jones, farrier, and wife Elizabeth for 7 yrs, £10 paid with apprentice the gift of the Queen Elizabeth Hospital.)

1739 Polls - either he or father William I (probably the former) voting from St James; voted for Southwell.

TOMLIN, Stephen (614)

F 1838

30 August 1838: free because son of William Tomlin of Bristol, labourer.

TOUCHIN, Christopher (615)

A 1669/70

3 February 1669/70: son of Christopher Touchin of Bristol, mariner, apprenticed to William and Mary Cissell for 7 yrs.

TOVEY, Charles (616)

fl 1889-91

1889-91 143 East St, Bedminster (Wright's Dir.) - shared premises with Robert Morgan, beer-retailer.

Occurs as Offer and Tovey (see also OFFER, Richard) with address "off East St" in Thomas George IV's list of makers he remembered or whose names were familiar to him compiled September 1952 and said to date to

1878 or 1880; in George's other list compiled 6 January 1953 and undated the equivalent entry is simple "Offer" at East St. Thomas George IV was born 1872 and died 1968. Site of East St premises illustrated in FIG 221; "off East St" ref. may refer to the alley Norfolk Place (see FIG 221 caption).

TOVEY, John (617)

F 1812, fl 1841

12 October 1812: free because son of William Tovey of Bristol, presser.

1812 Polls - Castle St, Castle Precincts; voted for Romilly and Davis.

1818 Polls - Old Market St, St Philip and Jacob In-parish; voted for Davis and Baillie.

1820 Polls - ditto; voted for Davis and Bright.

1830 Polls - George [sic] St, St Philip and Jacob Out-parish; voted for Davis and Protheroe.

1832 Polls - ditto; voted for Protheroe and Vyvyan.

1835 Polls - ditto; voted for Vyvyan and Miles.

1837 Polls - Earl St, Pennywell Rd, St Philip and Jacob Out-parish; voted for Fripp.

1841 Polls - Pennywell Rd, St Philip and Jacob Out-parish; voted for Miles and Fripp.

TOVY, Henry (618)

A 1630/1

17 February 1630/1: son of Zachary Tovy of Bristol, glazier, apprenticed to Humphrey and Barbara Fevers for 7 yrs.

TRIBBLE, William (619)

fl 1837

1837 15 Gt Ann St (Mathews's Dir.).

TUCKER, Cibil [sic - Cicely?]

of Cicely M by 1673, widowed bet. 1687 and 1691, fl 1691

15 October 1691: took John Hiscox apprentice at which time described as widow of John Tucker I; name given as Cibil.

John Tucker I's wife is persistently named Cicily (in variant spellings) from first reference, 17 October 1673 when Tucker and she took Henry Symons apprentice, to 11 May 1687, when Tucker and she took Thomas Hiscox apprentice: it is difficult to be certain whether the 1691 reference to Cibil Tucker is spelling error or whether Cicily had died before John Tucker I but still between 1687 and 1691.

TUCKER, John I (621)

F 1662, fl 1687, D by 1691

14 May 1662: free by order of the Mayor and Aldermen and Common Council for a fine of 10s.

(17 April 1669: Timothy Ricketts free having been apprenticed first to Hugh Lewis and later to Tucker.)

(9 December 1669: Francis Russell I free on petition that he had been an apprentice of Tucker.)

17 October 1673: he and wife Cicily took John Roach apprentice.

30 October 1676: he and wife Cicily took son John Tucker II apprentice.

(5 February 1680/1: his apprentice John Roach free.)

21 February 1680/1: he and wife Cicily took Henry Symons apprentice.

(17 September 1683: his apprentice Thomas Hill free.)

15 July 1684: he and wife Cicily took John Hennant apprentice.

11 May 1687: he and wife Cicily took Thomas Hiscox apprentice.

(18 February 1689/90: John Jenkinson, bookbinder, free having married Tucker's daughter Elizabeth.)

Dead by 15 October 1691 when widow Cibil [sic - Cicely?] took Francis Davis apprentice.

(9 March 1699/70: his apprentice Thomas Hiscox free.)

TUCKER, John II (622)

A 1676

30 October 1676: son of John Tucker I of Bristol, pipemaker, apprenticed to father and his wife Cicily.

TUCKEY, Samuel (623)

F 1754 Bristol, fl 1774 Lambeth, fl 1781-84 London

Apprenticeship record not found.

29 March 1754: free having been apprenticed to Thomas Grant.

1754 Polls - St James; voted for Philipps and Beckford.

1774 Polls - LAMBETH, SURREY; voted for Cruger and Burke.

1781 Polls - Old St, St Luke, LONDON; voted for Cruger.

1784 Polls - Whitechapel Rd, LONDON; voted for Brickdale and Daubeny.

VEALE, A.J. (Corcoran and Co (A.J. Veale)) (624)

fl 1903/04

1903-04 Tower St, Temple (Wright's Dir.) - as "Corcoran and Co (A.J. Veale)"

1904 firm of Corcoran and Co listed at this address in The New Bristol Directory 2nd ed presumably meant to be this firm.

Presumably Veale bought out Corcoran's business and name (see also CORCORAN, Thomas John) then set up the business in Tower St, Temple; his business is succeeded by (or changes its name to) the Bristol Tobacco Pipe Manufacturers (q.v.).

VENNER, Joseph (625)

fl 1856-61

1856-61 16 Gt George St (Matthews's Dir.).

1863 41 Gt George St (Kelly's P.O. Bristol Dir.).

1856 16 Gt George St (Gloucestershire, Herefordshire and Shropshire P.O. Dir.).

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and the other undated and compiled 6 January 1953 (name spelt Veener in first list, Venner in second).

VERIN, Robert (626)

fl 1816

1816 Lamb St (Matthews's Dir.).

VINER, Anna (627)

B 1731, M 1750, widowed ca.1775, fl 1775-1805, D 1810

1731: born, daughter of Samuel Watkins of Stroud and Sara Wick daughter of George Wick of Wickstreet (1659-1701); Samuel and Sarah Watkins married at Painswick 28 February 1725/6 (G. Viner *in litt*.8 and 28 August 1974).

1 October 1750: married George Viner (q.v.) at Stonehouse (G. Viner *in litt*. 8 and 28 August 1974).

Widowed ca.1775 on evidence of being listed alone in trade directory for that year (see below), on 1776 reference to George Viner being dead (q.v. VINER, George), and to George Viner's will being proved in favour of his widow Anna at Bristol 2 July 1777 (G. Viner *in litt*. 8 and 28 August 1974).

1775 4 Horse St (*Sketchley's Dir*.).

1783 Host St (*Western and Midland Dir*.) - Horse St became known as Host St at the beginning of the C19 according to Arrowsmith (1906 ed: 386).

1785 ditto (*The Bristol Dir*.).

1787 Horse St (*The Bristol and Bath Dir*.).

1791 14 Horse St (*The Universal Dictionary*).
1792 ditto (*The New Bristol Dir*.).

1794-95 Host St (*Matthews's Dir*.).

1797-1805 Under the Bank (ditto).

3 June 1810: died (G. Viner *in litt*. 8 and 28 August 1974).

Under the Bank premises probably taken over by Martha and William Okely (q.v. OKELY, Martha; and OKELY, William).

On her marriage to George Viner, Anna Viner brought with her Wickstreet House (1¼ miles SSW of Painswick), which reverted to her on her husband's death ca.1775 and was inherited by their son Edmund Wick Viner 1757-1831 (see family tree) (G. Viner *in litt*. 8 and 28 August 1974).

VINER, George (Vyner) (628)

B 1723/4, A 1740, F 1747, D ca.1775

21 February 1723/4: baptised at Painswick, Gloucesterhisre, son of John Viner of Bristol, joiner; mother's name unknown (G. Viner in litt. 8 and 28 August 1974).

21 April 1740: son of John Viner of Bristol, joiner, apprenticed to Charles Hickes for 7 yrs; friends to find apparel, £5 paid with the apprentice.

Turned over to George Ebbery sometime between 1740 and 1747 (see below) but no record of transfer.

22 April 1747: free having been first apprenticed to Charles Hickes decd and later turned over to George Ebbery.

1 October 1750: married Anna Watkins (q.v. VINER, Anna), daughter of Samuel and Sarah Watkins of Stroud, at Stonehouse.

20 January 1751/2: he and wife Anna took George West apprentice (West turned over 18 June 1754 to James II and Rebecca Stephens by consent of all parties and of Mr Ald. Clements).

1754 Polls - St Stephen; voted for Nugent and Beckford.

24 December 1755: he and wife Anna took John Bartlett apprentice.

(24 February 1756: William Smith, originally apprenticed to John Bryant decd and later turned over to Viner, free.)

6 November 1756: he and wife Anna took John Horley apprentice.

24 March 1757: he and wife Anna took Edward Hunt apprentice.

1757: son Edmund Wick Viner born (G. Viner in litt. 8 and 28 August 1974).

Presumably dead by 1775 when wife Anna appears alone at 4 Horse [Host] St in Sketchley's Dir.).

(Noted as dead 20 November 1776 when son Thomas apprenticed to James Paty, carver, and wife Mary).

(2 July 1777: will proved in favour of his wife Anna, Wickstreet House - which she had brought with her on her marriage - reverting to her and going on her death in 1810 to their son Edmund Wick Viner (1757-1831) (see family tree) (G. Viner in litt. 8 and 28 August 1974).)

George Viner's paternal great-great-grandfather, Richard (see family tree), spelt the family surname Vynor, and the earliest known member of the family, John (fl second half of C15), spelt it Vynar: on products of George Viner recorded from a site in New York state (see pp666-7) the surname in the bowl cartouche occurs as both Viner and Vyner.

VINSON, William (629)

A 1783

14 June 1783: son of William Vinson of Bristol, woolcomber, apprenticed to Samuel II and Ann Richards for 7 yrs; friends to find apparel and washing.

WADDAM, WADDUM, and WADHAM - see also WODDAM X

WADDAM, Thomas - see WADHAM, Thomas X

WADDUM, Edward (630)

D by 1672

17 September 1672: an Edward Waddum son of Edward Waddum late of Bristol, pipemaker decd, apprenticed to Griffith Lascombe, milliner, and wife Margaret for 7 yrs - if Edward Waddum sr was a tobacco-pipe maker he is otherwise unknown, but must have been working prior to 1672.

WADHAM, Thomas (Waddam) (631)

A 1732/3, F 1739, fl 1754

20 March 1732/3: son of John Wadham of Bristol, ropemaker, apprenticed to John and Esther Bickham [sic - Wickham is meant] for 7 yrs; friends to find apparel, £3 paid with the apprentice.

14 November 1739: free having married Mary daughter of John Poyte II of Bristol, pipemaker.

1739 Polls - St Thomas; voted for Southwell.

1754 Polls - St John; voted for Philipps and Beckford.

WADE, John (632)

A 1655

28 March 1655: son of Arthur Wade of Castle Combe, Wiltshire, smith, apprenticed to William I and Margaret Williams for 7 yrs and 1 covenant yr for which he is to have 20s.

WALKER, Henry (633)

A 1824, F 1838

17 December 1824: son of Thomas Palmer [possibly illegitimate] late of Bristol, labourer, apprenticed to William III and Elizabeth Thomas for 7 yrs; friends to find apparel and washing, £5 paid with apprentice the gift of Samuel Perry Esq. decd to poor boys.

20 August 1838: free having been apprenticed to William Thomas III decd.

WALKER, James (634)

A 1722, F 1722, fl 1754

7 May 1722: son of Robert Walker of Bristol, woolcomber, apprenticed to James and Mary Jenkins for 7 yrs; 40s paid with the apprentice ex dono Ald. Kitchen.

8 August 1733: free having been apprenticed to James Jenkins.

1734 Polls - St James; voted for Elton and Scrope.

1739 Polls - ditto; voted for Southwell.

1754 Polls - St Michael; voted for Philipps and Beckford.

WALL, Jane (635)

M by 1630/1, widowed bet. 1647 and 1650, fl 1660, D soon after 1661?

Married by 14 February 1630/1 when John Wall and she took Thomas Grigg apprentice.

Widowed between 14 July 1647 when husband and she took Thomas Hennant apprentice and 8 June 1650 when she took William Kinton apprentice and described as a widow (below).

8 June 1650: described as John Wall's widow, took William Kinton apprentice.

September 1652: founder-member of Bristol Pipemakers' Guild - referred to as a "widdow" in the list of members. Guild's charter claims all founding members were freemen or widows of freemen but no evidence that John Wall (q.v.) was ever a pipemaker freeman.

24 September 1653: took William Evans I apprentice.

31 October 1656: took Henry James apprentice.

(10 September 1657: her apprentice William Kinton free.)

11 July 1660: took William Evans II apprentice.

(26 September 1660: her apprentice William Evans I free.)

9 November 1661: her apprentice William Evans II turned over to Robert I and J(o)ane Tippet, suggesting Jane Wall may have become too old to run a business, in which case she may have retired or died soon after this date.

WALL, John (Walle, Worll; first name occurs once as Thomas) (636)

A 1619, freedom date not found, fl 1630/1-47, D by 1650

26 November 1619: son of Thomas Wall of Bristol, goldsmith, apprenticed to Richard and Anne Berryman [incomplete entry].

Freedom record (if indeed freedom was ever taken) not found.

14 February 1630/1: he and wife Jane took Thomas Grigg apprentice.

6 August 1631: he and wife Jane took Thomas Poyte I apprentice (Poyte dismissed 1 July 1634, though active 1652 and F 1656 - see further POYTE, Thomas I).

7 November 1636: he and wife Jane took Robert Powell I apprentice.

26 April 1641: he and wife Jane took Peter Barnslie apprentice.

1 June 1641: he and wife Jane took John Calloway apprentice.

(12 November 1646: his son Richard Wall apprenticed to Thomas James, cooper, and wife Margaret for 7 yrs plus 1 covenant yr.)

(6 May 1647: his apprentice Robert Powell I free.)

14 July 1647: he and wife Jane took Thomas Hennin [sic - Hennant] apprentice.

(18 November 1647: his son William Wall apprenticed to Walter Shaugh, cooper, for 7 yrs.)

Dead by 8 June 1650 when widow Jane Wall (q.v.) took William Kinton apprentice.

(23 September 1654: his apprentice Thomas Henning free - Wall referred to as Thomas Wall in this entry.)

John Wall's father, Thomas Wall, is presumably the Thomas Wall goldsmith noted by Latimer (1900: 11-13) as producing Bristol farthings for the corporation in 1597-98.

John Wall first Bristol pipemaker apprentice.

WALLIS, John (637)

A 1723/4, alive 1727/8

17 February 1723/4: son of William Wallis of Bristol, cordwainer, apprenticed to William I and Mary Tippet for 7 yrs; friends to find apparel, £6 paid with the apprentice.

8 January 1727/8: turned over with the consent of all parties to James and Mary Jenkins.

WALTER, John (638)

A 1653

14 November 1653: son of Robert Walter of Bath, glover decd, apprenticed to Philip I and Sarah Edwards for 7 yrs.

WATKINS, John (639)

F 1830, fl 1835

2 August 1830: free having married Ann daughter of George Elton of Bristol, glassmaker decd.

1830 Polls - no street noted, Temple; voted for Davis and Protheroe.

1832 Polls - Eugene St, St Philip and Jacob Out-parish; voted for Baillie and Vyvyan.

L835 Polls - ditto; voted for Vyvyan and Miles.

WATKINS, William (640)

fl 1835-40

1835-40 15 Temple St (Matthews's Dir.) - also had a Staffordshire warehouse.

WATSON, Thomas (641)

A 1806

15 April 1806: son of Charles Watson of Bristol, tin-plate worker, apprenticed to Martha Okely for 7 yrs; friends to find apparel and washing.

WATTS, Edward (642)

A 1689, F 1700

4 September 1689: son of John Watts late of St Mary Redcliff, Bristol, pinmaker decd, apprenticed by order of the Overseers of the Poor and the Parish Guardians to Jane Randall for 7 yrs.

12 October 1700: free having been apprenticed to Jane Randall.

WATTS, John (643)

A 1673

29 July 1673: son of Thomas Watts of Westcombe, Somerset, farmer, apprenticed to Edward I and Rachel Randall for 8 yrs.

WATTS, Thomas (Wats) (644)

F 1675, fl 1715, D by 1722

Apprenticeship record not found.

8 September 1675: free having been apprenticed to Robert Tippet I.

31 August 1697: he and wife Joan took Robert Cross apprentice.

26 August 1700: he and wife Joan took John Arthur apprentice.

(29 December 1707: his apprentice John Arthur free.)

7 January 1713/4: he and wife Anne took William Thomas II apprentice (Thomas turned over 5 April 1715 with consent of himself, his friends, and his master to Edward and Mary Reed).

1715 Polls - St Thomas.

20 June 1715: he and wife Anne took William West apprentice.

(28 January 1715/6: his apprentice Henry Hives, originally with Sarah Browning, free.)

Dead by 31 December 1722 when apprentice William Thomas II, latterly with Edward Reed, free and noted as originally with Thomas Watts deceased.

(22 March 1726/7: his apprentice William West free, at which time Watts also noted as dead.)

WEAVER, Alexander (645)

A 1722/3, released 1725

31 January 1722/3: son of Job Weaver of Bristol, weaver, apprenticed to John and Mary Purnell for 7 yrs; friends to find apparel (shoes and stockings excepted).

5 July 1725: discharged by order of the Tolzey.

Tolzey Book account indicates Weaver had "an utter dislike and aversion to the said Trade", and it was mutually agreed with his mother Ann [which suggests his father Job had died by this time] that he be discharged with no right to freedom by virtue of this apprenticeship. Mother signs with a mark, Purnell and Weaver sign in rather crabbed hands.

WEBB, John (646)

A 1669, F 1685

1 July 1669: son of William Webb of Somerset, yeoman, apprenticed to Edward and Abigal Battle for 7 yrs.

12 December 1685: free having been apprenticed to Edward Battle.

WELDEY, William (647)

A 1670

29 October 1670: son of Robert Weldey late of Bristol, cooper decd, apprenticed to John I and Susannah Lewis for 7 yrs and 1 covenant yr at the end of which he is to have 5s.

WEST, George (648)

A 1751/2, alive 1754

20 January 1751/2: son of Richard West late of Bristol, yeoman decd, apprenticed to George and Anna Viner for 7 yrs; friends to find apparel and washing.

18 June 1754: turned over by consent of all parties and Mr Alderman Celements to James II and Rebecca Stephens.

WEST, Henry (649)

A 1689, alive 1696

23 September 1689: son of John West late of Bristol, labourer decd, apprenticed with consent of Overseers of the Poor Guardians of the Parish

of Christchurch to Anne Smith for 8 yrs.

1696: noted with mistress Anne Smith in Christchurch in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 27).

WEST, William (650)

A 1715, F 1726/7, fl 1739

20 June 1715: son of Anthony West of Bristol, cordwainer, apprenticed to Thomas and Anne Watts for 7 yrs.

22 March 1726/7: free having been apprenticed to Thomas Watts decd.

1734 Polls - St Mary Redcliff; voted for Elton and Coster.

1739 Polls - ditto; voted for Southwell.

WHITCACRE (sp?), John (651)

A 1670

29 September 1670: son of John Whitcacre (sp?) of Chilcompton, Somerset, pipemaker, apprenticed to Flower and Christian Hunt for 7 yrs.

WHITE, Daniel (652)

fl 1840-41

1840-41 Wade St (*Matthews's Dir.*).

WHITE, Jacob (653)

fl 1850

1850 16 Gt Ann St (Hunt's Bristol Dir.).

WHITE, James I (654)

Younger brother of Joseph White II associated with him apparently throughout his Bristol career; retired with Joseph II 1855 (Pountney 1920: 269).

A James White occurs in undated list of pipemakers remembered by or whose names were familiar to Thomas George IV (1872-1968) compiled 6 January 1953 but not in similar list said to date to 1878 or 1880 and compiled September 1952. Two marginal entries read "James White married one of the Georges" and "James White went to America & was supposed to leave a Fortune no one to claim it": this cannot refer to the James White noted above, for he never went to North America (according to Collard (1967: 254) this James eventually went blind), but it may refer to James A. White (1841-1928) a son of Joseph White II who emigrated with his father, a brother, and two sisters to Saint John, New Brunswick, in the early 1860s where the family set up a potting and pipemaking business (see family tree). James A. White, however, left no fortune: the pottery was devastated by fire in 1885 and went bankrupt not many years after (Collard 1967: 256). For a more detailed account of the White family and its descendants in North America see pp551-3 in text.

WHITE, James II (655)

fl 1837-43

1837-43 10 Gt Ann St (Matthews's Dir.).

WHITE, John (656)

A 1733, F 1754

6 July 1733: son of Thomas White of Wrington, Somerset, cordwainer, apprenticed to William and Mary Foord for 7 yrs; friends to find apparel.

26 March 1754: free having been apprenticed to William Foord.

1754 Polls - St James; voted for Philipps and Beckford.

WHITE, Joseph I (657)

fl 1813-17

1813-17 New St (Matthews's Dir.).

1817 ditto (The Bristol Index, or Evans' Dir.) - not recorded in this directory for 1818 (cf entries above).

Could possibly also be the Joseph White recorded in Rich's Buildings, Redcross St, 1829-45 (see WHITE, Joseph II), but for arguments against this see second paragraph under the WHITE, Joseph III entry.

WHITE, Joseph II (658)

fl 1829-45

1829-45 Rich's Buildings, Redcross St (Matthews's Dir.) - "Tobacco pipe manufacturer, China & Staffordshire warehouses".

1837 Richard's [sic] Buildings, Redcross St (Robson's Dir.) - as J. White and Sons (see WHITE, Joseph III).

1842 Redcross St (Pigot's Dir.).

Father of Joseph jr and James White (see WHITE, Joseph III). Could possibly also be the Joseph White recorded at New St 1813-19 (see WHITE, Joseph I), but for arguments against this see second paragraph under the WHITE, Joseph III entry.

WHITE, Joseph III (White, Joseph jun and James) (659)

B 1799, A 1814 (as a potter), fl with brother James 1847-62?, to Canada early 1860s, D there 1870

According to Pountney (1920: 268) Joseph jr and James White began business as "manufacturers of yellow ware and black teapots" at Rich's Buildings, Redcross St, in 1828, using local clays. In 1840, as a result of a dispute with their father [Joseph White - see WHITE, Joseph II] who was also their landlord at Rich's Buildings, they bought the Harford and Bristol Brass Battery Company at Baptist Mills and continued their pottery business there. About this time they brought out what Pountney says they called "Egyptian Black" to replace their shining-black (a manganese lead glaze) wares - presumably this was a mat black body, though the term Egyptian black for this dates back to a century earlier - which was a major success, "being exported largely to the Azores and Batavia and to many other equally distant places" (Pountney pp 268-9). They also produced lustre ware (for a short time), Rockingham teapots, mazarine blue ware, and specialized in "a perfect imitation of Bristol stone-ware" and also in producing in their mills the leadless glaze for stoneware which was invented ca.1835 in Bristol and rapidly succeeded the use of salt for glazing stoneware. Again according to Pountney (p.269) Joseph jr and James both retired in 1855, leaving the business to their sons who continued until 1875 when the last surviving partner died, his executors continuing the business until 1890 when Bristol Corporation bought the property in order to remove the mills, the mill-dams causing serious flooding by the Frome (Pountney pp 269-70). No mention of pipe-manufacture is made by Pountney in his account of this firm.

Matthews's directories, however, list Joseph jr and James White as a business only from 1847, locating them at Baptist Mills and describing them as "Egyptian black, & Rockingham teapot, stone jug & tobacco pipe manufacturers", which last accords with Pountney's description if one omits the pipes. The Whites last appear in the directories as pipemakers in 1862, but the firm continues to be listed as a pottery business until 1870 when it becomes J.A. White followed in 1881 or 1882 by I. and J. White and in 1886 by J. and J. White which continued to be listed until 1891. From 1892 (cf Pountney's reference above to the Baptist Mills property being acquired by the Corporation for demolition in 1890) what appears to be the firm's successor (White's) Yate Pottery, is listed at 40 Broad St continuing until 1902 when as the Yate Fire Clay and Co it appears for the last time. The outstanding problem is that of interpreting the earlier directory entries in the light of Pountney's remarks that Joseph jr and James had been in business at Rich's Buildings from 1828, at least as potters. As noted under Joseph White I (q.v.), a Joseph White is listed 1813-17 as a pipemaker in New St and another or the same Joseph White appears at Rich's Buildings, Redcross St, 1829-45. The questions are: (a) is the Joseph White at Rich's Buildings 1829-45 the Joseph White of Joseph jr and James White, and (b) is this Joseph

White the Joseph White at New St 1813-17? Pountney does not name the father of Joseph jr and James in his account of the firm, he notes (p.268 n.) that Joseph jr had been apprenticed to the potter J.D. Pountney in August 1814; and in his list of apprentice potters (p.322) Pountney gives more details, noting that Joseph jr was the son of Joseph White of Bristol, potter, that he was to be trained as a turner, and that the actual date of his apprenticeship was 26 August. Joseph jr could not possibly have been the Joseph White making pipes 1813-17 if he were apprenticed only in 1814 - Collard (1967: 253) says Joseph jr was born 1799 - but he could have been the Joseph noted from 1829 onwards. On the other hand, that Joseph (fl 1829-45) could equally have been Joseph sr, for the address given, Rich's Buildings, was according to Pountney (see above) owned by Joseph sr, Joseph jr and James renting from him until 1840. A further suggestion that the Joseph fl 1829-45 esd Joseph sr comes in the Robson's Directory entry of 1837 which reads "J. White and Sons", suggesting Joseph jr and James were working with their father. The conclusion seems to be, therefore, that the Joseph listed 1829-45 was Joseph sr father of Joseph jr and James, and that the latter two were associated with him during this period and that they left to found the Baptist Mills pottery in 1847 rather than in 1840. The only problem unresolved is whether the Joseph White fl 1813-17 is the same as the Joseph White (Joseph White sr) recorded 1829-45: tentatively it is suggested they were different people because both the Matthews directory the Bristol Index, or Evans' Directory entries (though the latter could admittedly have copied from the former) indicate the New St Joseph White ceased to appear after 1817 and there is then a gap until 1829: Pountney (1920: 268) says the Whites "had been for many generations tobacco pipe makers" but says that had made pipes at Rich's Buildings whereas there is no White pipemaker recorded at that address before 1829, and elsewhere Pountney (p.322) says the apprentice rolls give Joseph sr as a potter in 1814 at which time the directories record only one Joseph White, the New St pipemaker.

In the early 1860s Joseph White III [then in his early 60s] was persuaded to emigrate to Saint John, New Brunswick, Canada, and take over the Courtnay Bay Pottery there at the urging of one of his sons Frederick J. White (see family tree). The history of the family in Canada and their pottery businesses have been dealt with by Collard (1967: 253-6 and refs, 265-6 and refs, 346 s.v. Poole & Foley, 350 s.v. White, Joseph & Sons, pls 36 and 37a) and this account is summarized in 6: VI. Joseph White III died 1870 at Saint John.

WHITE, William (660)

fl 1847-51

1847-51 Rich's Buildings, Redcross St (Matthews's Dir.) - "black and Rockingham teapot, stone jug and fire-clay chimney-pot and tobacco pipe manufacturer, Staffordshire warehouse".

1850 Redcross St (Hunt's Bristol Dir.).

1852 Redcross St Pottery (Slater's (late Pigot's) Dir.) - "& for exportation".

1853 Redcross St (Scammell's Gloucester, Bristol and South Wales Dir.).

In 1852 the Matthews's directory lists a John Ellis who succeeds to White's plurality of occupations but minus the pipe-making; for this reason it is assumed the 1852 and 1853 directory entries noted above are out of date. This William White cannot be the William Daniel White son of Joseph White (q.v.) because Collard (1967: 350) records he was born only in 1833. Chronologically he could be a brother of Joseph III and James White, however, for he takes over the premises of Joseph II (father of Joseph III and James) and continues (or expands) his pottery works; on the other hand James Tillett (q.v.) took over this premises for the year 1846 between Joseph White II's last entry in 1845 and William White's first appearance 1847. Does not appear in Collard's extensive study of the White family (see also 6: VI).

WICKHAM, Henry (661)

A 1765, F 1774 when in London, fl 1781-84 Brentford

7 January 1765: son of Josias Wickham of Bristol, pipemaker, apprenticed to John and Susannah Lee for 7 yrs; 40s paid with apprentice the gift of Mr Ald. Kitchen decd. (Lee's profession not stated in apprenticeship entry.)

10 September 1774: free because son of Josias Wickham of Bristol, pipemaker.

1774 Polls - Crow St, Spitalfields, LONDON; voted for Cruger and Burke.

1781 Polls - BRENTFORD, MIDDLESEX; voted for Cruger.

1784 Polls - ditto; voted for Cruger.

WICKHAM, John (Bickham) (662)

F 1723, fl 1744

Apprenticeship record not found.

17 June 1723: free having been apprenticed to Henry Edwards.

17 April 1732: he and wife Hester took over James Stephens II apprentice from John Fryer.

20 March 1732/3: he and wife Ester [sic] took John Short apprentice [apprenticeship record gives Wickham's surname as Bickham] (Short discharged 12 May 1735).

(15 October 1739: his apprentice James Stephens II, originally with John Fryer, free.)

1839 Polls - St Thomas; voted for Combe.

1 February 1739/40: he and wife Hester took John Bisse apprentice.

13 April 1741: he and wife Hester took John Phillips apprentice.

29 November 1744: Phillips discharged by mutual agreement between himself and his friends and his master Wickham.

Wickham makes a mark in both Tolzey Book accounts involving him, the discharge of John Short and that of John Phillips.

WICKHAM, Josias (first name also appears as Josiah) (663)

F 1739, fl 1754 Bristol, fl 1774-84 London

9 October 1739: free because son of Llewellin Wickham [no trade given, but not a pipemaker].

1739 Polls - St James; voted for Southwell.

1754 Polls - St Philip and Jacob; voted for Nugent.

1774 Polls - Nightingale Lane, LONDON; voted for Cruger and Burke.

1781 Polls - ditto (Wapping added); voted for Cruger.

1784 Polls - St John, Wapping, LONDON; voted for Brickdale and Daubeny.

WILKIE, J. (Wilkey) (664)

fl 1863-70

1863-65 Wade St (Matthews's Dir.).
1866-70 27 Wade St (ditto).

Occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953.

WILKINS, Ebenezer (665)

A 1723

23 October 1723: son of Samuel Wilkins of Bristol, merchant, apprenticed to John and Mary Purnell for 7 yrs; friends to find apparel, £3 3s paid with the apprentice.

WILLIAMS, Abraham (666)

A 1701/2, F 1708/9, D by 1732

14 January 1701/2: son of Roger Williams of Bristol, pipemaker decd, apprenticed to Susannah widow of Roger Williams for 7 yrs.

19 March 1708/9: free having been apprenticed to Susannah widow of Roger Williams.

Dead by 5 June 1732 when son Roger apprenticed to John Lewden of Bristol, merchant tailor, and wife Elizabeth for 7 yrs; friends to find apparel, £7 paid with the apprentice ex publico dono.

WILLIAMS, Ann (667)

fl 1824-34

1824 Lamb St (Matthews's Dir. - succeeds John Williams III (q.v.).
1825-28 not listed - a John Williams entry (presum. John Williams III) returns (ditto).
1829-34 Lamb St (ditto).

Succeeded by a John Williams, presum. John Williams IV (q.v.).

Seems most likely that Ann Williams is the widow of John Williams III and that she succeeded him 1824, the 1825-28 return of John Williams III being a directory compiler's error. John Williams IV would then be a son of John III and Ann.

WILLIAMS, Joel (first name also appears as Joell) (668)

F 1713, business failed and had left city 1719/20, apparently returned for fl 1722

21 July 1713: free because son of Robert Williams I of Bristol, pipemaker.

21 September 1716: he and wife Margaret took John Barkley apprentice.

29 February 1719/20: Barkley turned over for remainder of term with the consent of himself and his friends to John and Mary Purnell, Williams "being failed and gone off". [Probable that Williams had left only shortly before this date.]

1722 Polls - St James [presumably Williams had returned to Bristol by this time]; voted for Earl and Elton.

WILLIAMS, John I (669)

A 1624

27 March 1624: son of William Davye late of Caerleon, husbandman decd, apprenticed to Samuel I and Elizabeth Lewis for 9 yrs and 1 covenant yr, to be paid 20s at end of covenant yr.

WILLIAMS, John II (670)

F 1812, fl 1830

6 October 1812: free having married Mary daughter of Thomas Newton of Bristol, smith decd.

1812 Polls - Ann [sic] St, St Philip and Jacob Out-parish; voted for Davis and Protheroe.

1818 Polls - Avon St [sic - presum. Ann St], St Philip and Jacob Out-parish; voted for Davis and Protheroe.

1820 Polls - Ann [sic] St, St Philip and Jacob Out-parish; voted for Davis and Bright.

1830 Polls - Tower St, Temple; voted for Davis and Protheroe.

(1835 Polls - a John Williams of Tower St, Temple, listed as a labourer: possibly this John Williams but equally possibly a son or someone unrelated. Voted for Baillie and Hobhouse.)

Appears not to be the same person as the John Williams catalogued here under Williams, John III because of difference in places and dates of work.

WILLIAMS, John III (671)

fl 1822-23 [also listed prob. erroneously 1825-28]

1822-23 Lamb St (*Matthews's Dir*.).

Successor of Thomas Williams II fl 1815-21 (q.v.) at Lamb St; followed 1824 by Ann Williams (q.v.). She in turn is followed by John Williams who apparently reappears 1825-28, to be followed once again by Ann Williams 1829-34. The most probable explanation is that Ann Williams is John Williams III's widow, that she succeeded him 1824, and that the directory compilers inadvertently returned to using John in the entries 1825-28. Thus John Williams III's correct dates would be 1822-23 and Ann Williams's 1824-34 (see also WILLIAMS, Ann).

WILLIAMS, John IV (672)

fl 1839-76

1839-76 Lamb St (*Matthews's Dir*.).

1848 14 Lamb St (Hunt's *Bristol and Welch Towns Dir*.).

1850 ditto (Hunt's *Bristol Dir*.).

1852 Lamb St (*Slater's (late Pigot's) Dir*.).

1852 Polls - Lamb St, St Philip and Jacob Out-parish; voted for McGeachy.

1853 14 Lamb St (Scammell's *Gloucester, Bristol and South Wales Dir*.).

1863 Lamb St (Kelly's *P.O. Bristol Dir*.).

Occurs in list of makers remembered by or whose names were familiar to Thomas George IV (1872-1968) said to date to 1878 or 1880 and compiled September 1952 but not in similar, undated, list compiled 6 January 1953.

Successor of Ann Williams (q.v.), succeeded by Mrs. J. Williams (Sarah Williams - q.v.).

WILLIAMS, Lewis (673)

A 1654

26 July 1654: son of William Davis of (?)Landavilock, Carmarthen, husbandman decd, apprenticed to William I and Margaret Williams for 7 yrs and 1 covenant yr, to receive at the end of his term 30s with a mould and a screw.

WILLIAMS, P. (674)

fl 1869-70

1869-70 Lawrence Hill (Matthews's Dir.) - not mentioned in general section 1870.

A P. Williams occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953; the address given, however, is New St. Assuming the address is either wrong or refers to another point in time, this P. Williams could be either Peter Williams II (q.v.) or P. Williams here; it is perhaps more likely George was remembering the later of these two, that is the P. Williams here.

WILLIAMS, Peter I (675)

fl 1830-36

1830-36 10 Gt Ann St (Matthews's Dir.) - 1834 entry occurs in general section only.

Succeeded at this address by James White II (q.v.).

WILLIAMS, Peter II (676)

fl 1849-54

1849-54 11 Gt Ann St (Matthews's Dir.) - trade entries give address as 11 Gt George St 1849-50.

1850 ditto (Hunt's Bristol Dir.).

1852 Ann [sic] St (Slater's (late Pigot's) Dir.).

1853 11 Gt Ann St (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

A P. Williams occurs in both lists of makers remembered by or whose names were familiar to Thomas George IV (1872-1968), one list said to date to 1878 or 1880 and compiled September 1952 and the other undated and compiled 6 January 1953; the address given, however, is New St. Assuming the address remembered is either wrong or refers to another point in time, this P. Williams could be either Peter Williams II here or P. Williams fl 1869-70 (q.v.); it is perhaps more likely George was remembering the later of these two, that is P. Williams.

WILLIAMS, Priamus (677)

A 1669/70, F 1677

31 January 1669/70: son of William Williams I of Bristol, pipemaker, apprenticed to Thomas and Sarah Monkes for 7 yrs.

18 May 1677: free having been apprenticed to Thomas Monkes.

WILLIAMS, Robert I (678)

A 1674, F 1685, fl 1714

24 November 1674: son of Robert Williams of Axbridge, Somerset, carrier, apprenticed to William Evans [either William Evans I or William Evans II] and wife Katherine for 7 yrs.

31 March 1685: free having been apprenticed to William Evans [either William Evans I or William Evans II].

20 March 1703/4: he and wife Martha took John Ricketts II apprentice.

(21 July 1713: his son Joel Williams (q.v.) free.)

18 April 1714: he and wife Martha took Robert Bates apprentice.

WILLIAMS, Robert II (679)

F 1830

3 August 1830: free having married Eliza daughter of Reuben Bond of Bristol, cooper.

WILLIAMS, Roger (680)

F 1668, fl 1677, D by 1692 poss. ca.1687 or later

Apprenticeship not found.

12 August 1668: free having been apprenticed to William Williams I.

10 July 1673: he and wife Susannah took George James I apprentice (James discharged 2 July 1674).

12 July 1677: he and wife Susannah took George Atton apprentice.

Dead by 2 June 1692 when son Roger apprenticed to Daniel Lovell, pewterer, and wife Anne (presumably the same son Roger apprenticed 6 March 1692/3 to Nicholas Wade, weaver, and wife Anne for 8 yrs and turned over to William Head, weaver, 14 November 1695); possibly died ca.1687 or later as son Abraham Williams (q.v.) apprenticed to his mother - Roger's widow - Susannah Williams (q.v.) and if apprenticed at ca.14 must have been born ca.1687-88 in which case father alive at least until about that time.

Widow Susannah Williams continued deceased husband's business past 1700.

Son Roger noted above A 1692 to a pewterer and presumably the same as the Roger A 1692/3 to a weaver and turned over 1695 to another weaver should be the Roger noted with widowed mother in 1696 list of inhabitants (Ralph and Williams (eds) 1968: 215; see also WILLIAMS, Susannah) though it appears apprentices were normally noted with their master not their parents. Possibly the twice-apprenticed, once-transferred Roger had given up his apprenticeship by 1696 and returned home.

WILLIAMS, Sarah (681)

fl 1877-83

1877 Lamb St (Matthews's Dir.) - as Mrs J. Williams.
1878-81 ditto (Matthews's Dir. to 1879, Wright's Dir. from 1880) - as J. Sarah [sic] Williams.
1882-3 14 Lamb St (Wright's Dir.) - as Sarah Williams.

Successor and presum. widow of John Williams IV (q.v.), succeeded by W. Pring (q.v.)

WILLIAMS, Susannah (first name also appears as Susan, Susanne, Sussanna, and Shusannah) (682)

M by 1673, widowed bet. 1677 and 1692 poss. ca. 1687 or later, fl 1701/2

Married by 10 July 1673 when husband Roger Williams and she took George James I apprentice.

Widowed between 12 July 1677 when husband and she took George Atton apprentice and 2 June 1692 when son Roger apprenticed to Daniel Lovell, pewterer, and wife Anne; possibly widowed ca.1687 or later as son Abraham Williams (q.v. - see also below) apprenticed to mother 1701/2 and if apprenticed ca.14 must have been born ca.1687-88 in which case father alive at least until about that time.

22 December 1693: took son William Williams II apprentice.

1696: noted as a widow with children William, Roger, Abraham, Susannah, and Elizabeth in St Thomas in list of Bristol inhabitants (Ralph and Williams (eds) 1968: 215).

14 January 1701/2: took son Abraham Williams apprentice.

(23 February 1707/8: son William Williams II free.)

(19 March 1708/9: son Abraham Williams free.)

WILLIAMS, Thomas I (683)

fl 1791-92

1791 Redcross St (The Universal British Dictionary).
1792 ditto (The New Bristol Dir.).

WILLIAMS, Thomas II (684)

fl 1815-1821

1815-21 Lamb St (Matthews's Dir.).

Succeeded by John Williams III (q.v.).

WILLIAMS, Thomas III (685)

F 1830, fl 1835

29 July 1830: free having married Letitia daughter of Richard Oswald of Bristol, coalminer decd.

1830 Polls - Lamb St, St Philip and Jacob Out-parish; voted for Davis and Protheroe.

1832 Polls - ditto; voted for Baillie and Vyvyan.

1835 Polls - Love [sic - presum. Lamb] St, St Philip and Jacob Out-parish; voted for Vyvyan and Miles.

WILLIAMS, Thomas IV (686)

fl 1886-87

1886-87 22 New St (Wright's Dir.).

WILLIAMS, William I (687)

A 1639, F 1651, fl 1685

10 June 1639: son of Hugh Williams of Bristol, tailor, apprenticed to Humphrey and Joan Steevens for 7 yrs and 1 covenant yr.

17 September 1651: free by express order of Mayor and Aldermen with a fine of 20s.

September 1652: founder-member of Bristol Pipemakers' Guild.

26 July 1654: he and wife Margaret took Lewis Williams apprentice.

28 March 1655: he and wife Margaret took John Wade apprentice.

26 March 1667: bondsman, of St Michael, in marriage licence for William Hix, sailor, and Ann Quinton both of St Michael; at St Michael's (Hollis and Ralph (eds) 1952: 52).

7 April 1668: he and wife Margaret took William Richards apprentice.

(31 January 1669/70: son Priamus Williams apprenticed as a pipemaker to Thomas and Sarah Monkes.)

13 March 1675/6: he and wife Margaret took Richard Foot apprentice.

(15 October 1684: his apprentice Richard Foot free.)

13 May 1685: bondsman, listed only as of Bristol, in marriage licence for Andrew Derrick of Bristol, sailor, and Jane Williams of St Michael; at St Michael's (Hollis and Ralph (eds) 1952: 163).

Jane Williams noted in 1685 marriage bond presumably a relative.

WILLIAMS, William II (688)

A 1693, F 1707/8

22 December 1693: son of Roger Williams late of Bristol, pipemaker decd, apprenticed to Susannah Williams widow of Roger Williams for 7 yrs.

23 February 1707/8: free having been apprenticed to Susannah Williams.

WILLIS, Ann (689)

fl 1833

1833 9 Temple St (Matthews's Dir.).

Possibly a widow of William Willis fl 1823-32 (q.v.) but if so changes her address.

WILLIS, Nicholas (690)

A 1724, F 1733/4, fl 1754

9 December 1724: son of Nicholas Willis of Bristol, coalminer, apprenticed to John I and Anne Pearce for 7 yrs; friends to find apparel, £4 10s paid with the apprentice *ex publico dono*.

11 March 1733/4: free having been apprenticed to John Pearce I.

1739 Polls - St Mary Redcliff; voted for Southwell.

4 May 1742: he and wife Charity took William Lansdown apprentice.

1754 Polls - St Mary Redcliff; voted for Philipps and Beckford.

WILLIS, William (691)

fl 1823-33

1823-33 17 Gt Ann St (Matthews's Dir.).

Possibly his widow Ann Willis fl 1833 (q.v.) but if so she changes her address.

WILMOT, Thomas (692)

A 1728, alive 1730/1

26 August 1728: son of Thomas Wilmot of Barton Regis, Gloucestershire, glassmaker, apprenticed to Anthony I and Hester Baily for 7 yrs; friends to find apparel, 40s paid with the apprentice.

5 January 1730/1: turned over to William and Mary Nicholas.

WILSON, John (Willson) (693)

F 1707, fl 1722

Apprenticeship record not found.

1 October 1707: free having been apprenticed to Thomas Harvey.

2 September 1708: he and wife Mary took Francis Painter apprentice.

23 November 1710: he and wife Mary took Richard Hare apprentice.

1715 Polls - St James.

(12 September 1715: his apprentice Francis Painter free.)

23 April 1716: he and wife Mary took John Wit Simmonds apprentice.

11 February 1717/8: his apprentice John Wit Simmonds turned over to James and Mary Jenkins after repeated complaints from Simmonds about ill-treatment from Wilson. Initially Simmonds had complained that Wilson had "frequently beaten and bruised [him] in a barbarous and cruel manner without any just reason or provocation, threatening to sacrifice [sic] him, calling him ill names, and cursing him so that he [Simmonds] cannot live at peace with his s^{d} Master but goes in dread of his life of him, the s^{d} John Wilson being often drunk and very passionate" and also that Wilson had not given him food and drink. Wilson, summoned before the Mayor, had been unable to justify his behaviour and had been ordered to desist from further violence, but as he "appeared obstinate and refractory and there appearing no likelyhood that he will forbear such cruel treatm^{t}" of Simmonds the Mayor ordered the latter's transfer to James and Mary Jenkins.

1722 Polls - St James; voted for Hart.

WINCHESTER, James (694)

fl 1835-56

1835-56 Bread St, St Philip's (Matthews's Dir.) - address occasionally appears as Broad St.

1837 ditto (Robson's Dir.).

1842 ditto (Pigot's Dir.).

1848 ditto (Hunt's Bristol and Welch Towns Dir.).

1852 ditto (Slater's (late Pigot's) Dir.).

1853 Old Bread St (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

WINGROVE, Richard (695)

F 1680/1

Apprenticeship record not found.

5 February 1680/1: free having been apprenticed to Flower Hunt.

WISE, Francis (696)

A 1698

25 November 1698: son of Henry Wise of Bristol, mariner, apprenticed to Edmond and Christian Sinderling for 7 yrs.

WODDAM, Thomas (697)

A 1674

30 April 1674: son of John Woddam late of Brislington, Somerset, carrier decd, apprenticed to William Evans [either William Evans I or William Evans II] and wife Janet for 7 yrs.

WODDAM - see also WADDUM and WADHAM X

WOLFE, James - see BULL, James II X

WOODWARD, William (698)

A 1747

7 September 1747: son of John Woodward late of Bristol, weaver decd, apprenticed to William I and Susannah Pearce for 7 yrs.

WORLL, John - see WALL, John X

WYATT, Philip (699)

A 1692

7 October 1692: son of William Wyatt of Bristol decd [no trade mentioned] apprenticed to Francis and Elienor Edwards for 7 yrs.

YOUNG, John Mates (700)

fl 1803-06

1803 1 Merchant St (Matthews's Dir.).

1805-06 ditto (ditto).

Listed as auctioneer and broker 1800, presumably D by 1807 because succeeded by Mary Young (q.v.) presumably his widow. A John Young cabinet-maker noted on Merchant St 1797 and 1798, probably John Mates Young's father.

YOUNG, Mary (701)

fl 1807-08

1807-08 1 Merchant St (Matthews's Dir.).

Presumably a widow of John Mates Young (q.v.) whom she succeeds.

YOUNG, Thomas I (702)

F 1723, fl 1754, D by 1763

Apprenticeship record not found.

18 November 1723: free having been apprenticed to Edward Reed.

1739 Polls - St Michael; voted for Southwell.

1754 Polls - St James; voted for Philipps and Beckford.

Dead by 5 September 1763 when son Thomas Young jr apprenticed to John Showell of Bristol, merchant tailor, and wife Eleanor for 7 yrs, £10 paid with apprentice from the fund of Edward Colston Esq decd.

YOUNG, Thomas II (703)

f1 1842-56

1842 Gt George St (Pigot's Dir.).

1844-49 9 Gt George St and 14 Gt Ann St (Matthews's Dir.).
1850 14 Little Ann St and Gt Ann St [sic] (ditto).
1851-56 8 Little Ann St (ditto).

1848 9 Gt George St (Hunt's Bristol and Welch Towns Dir.).

1850 Little Ann St (Hunt's Bristol Dir.).

1852 Ann St [sic] (Slater's (late Pigot's) Dir.).

1852 Polls - Little Ann St, St Philip and Jacob Out-parish; voted for Berkeley and Langton.

1853 Little Ann St (Scammell's Bristol General Dir.).
1853 ditto (Scammell's Gloucester, Bristol and South Wales Dir.).

Apparently shared his premises with Thomas Edgar (q.v.) who is noted at 9 Gt George St 1847-49.

YOUNG, William I (704)

A 1721, F 1739, fl 1754

8 May 1721: son of William Young of Bristol, yeoman, apprenticed to Nathaniel and Eleanor Chilton for 7 yrs; 40s paid with the apprentice.

22 October 1739: free having been apprenticed to Nathaniel Chilton decd.

1739 Polls - St John; voted for Combe.

1754 Polls - Christchurch; voted for Philipps and Beckford.

YOUNG, William II (705)

F 1774 when in London, fl 1781 London, fl 1784 Lambeth

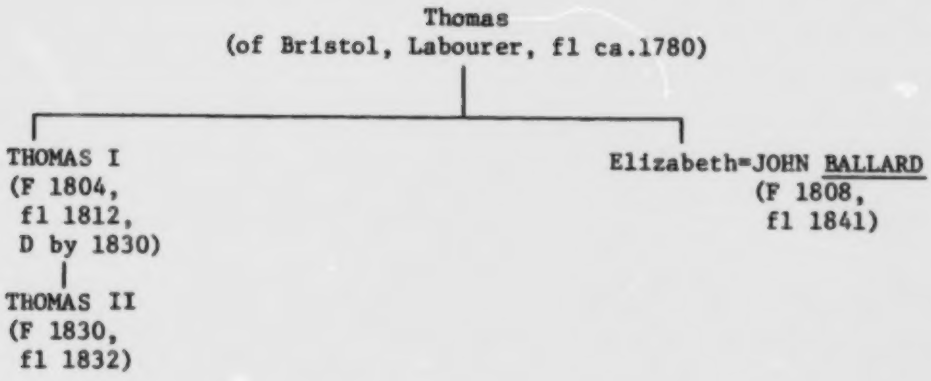
27 October 1774: free because son of William Young I of Bristol, pipemaker.

1774 Polls - Charlotte St nr the Hermitage, LONDON; voted for Brickdale.

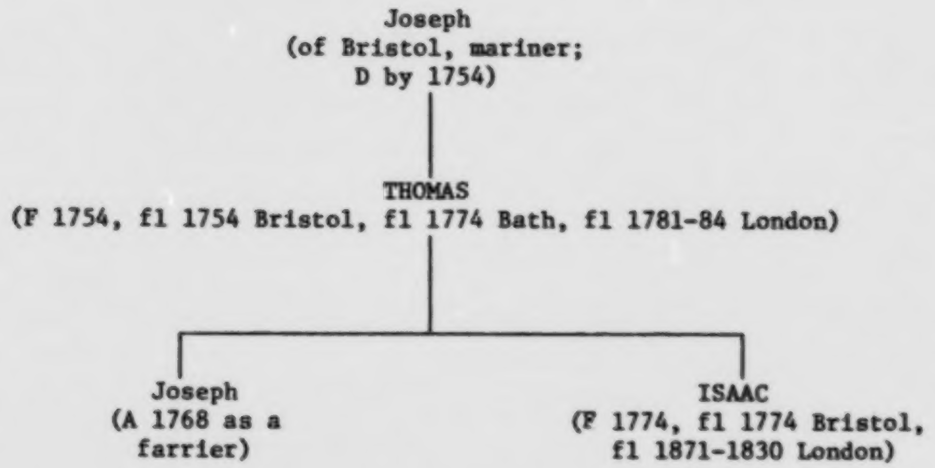
1781 Polls - Cow Cross, Smithfield, LONDON; voted for Cruger.

1784 Polls - LAMBETH, SURREY; voted for Brickdale and Daubeny.

APPLEFORD


Thomas
(of Bristol, Labourer, fl ca.1780)
THOMAS I
(F 1804,
fl 1812,
D by 1830)
THOMAS II
(F 1830,
fl 1832)
Elizabeth=JOHN BALLARD
(F 1808,
fl 1841)

BICKMAN



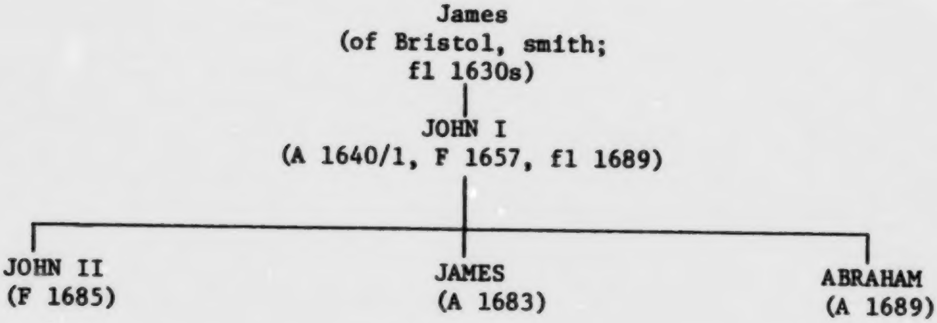
Joseph
(of Bristol, mariner;
D by 1754)

THOMAS
(F 1754, fl 1754 Bristol, fl 1774 Bath, fl 1781-84 London)

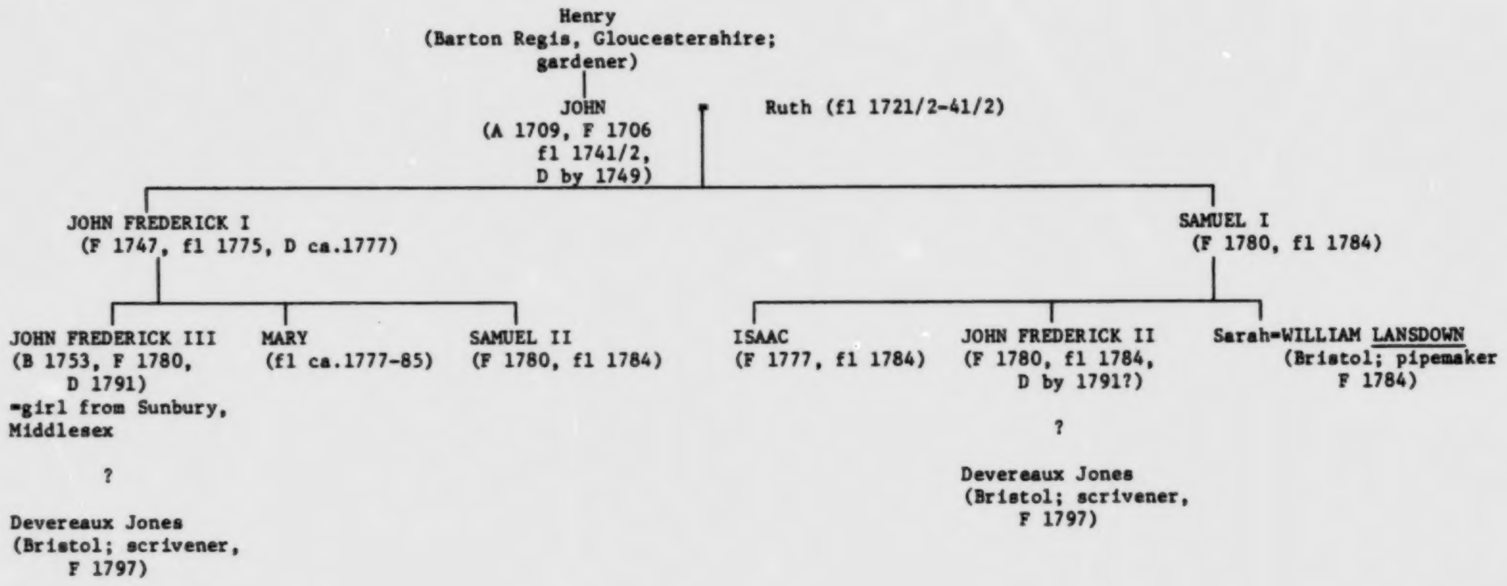
Joseph
(A 1768 as a
farrier)

ISAAC
(F 1774, fl 1774 Bristol,
fl 1871-1830 London)

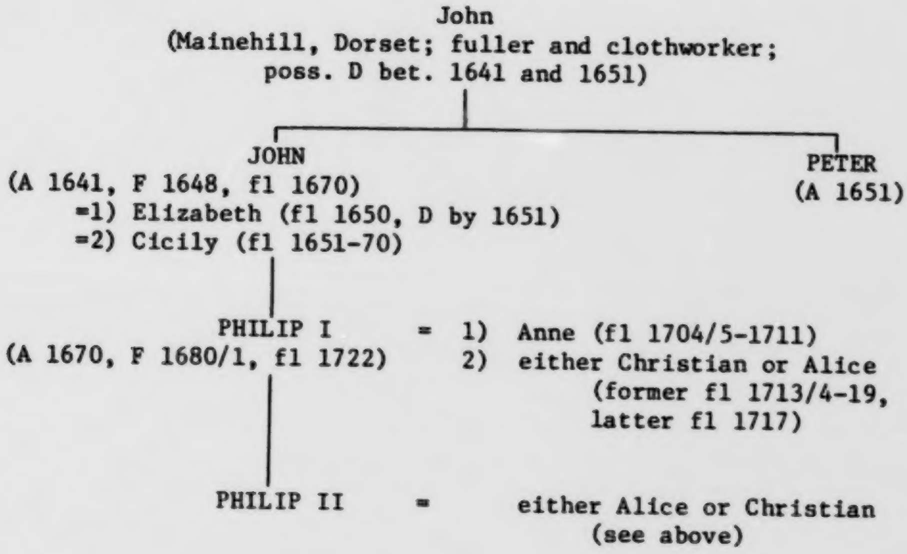
BLADEN


James
(of Bristol, smith;
fl 1630s)
JOHN I
(A 1640/1, F 1657, fl 1689)
JOHN II
(F 1685)
JAMES
(A 1683)
ABRAHAM
(A 1689)

BRYANT


Henry
(Barton Regis, Gloucestershire;
gardener)
JOHN
(A 1709, F 1706
fl 1741/2,
D by 1749)
Ruth (fl 1721/2-41/2)
JOHN FREDERICK I
(F 1747, fl 1775, D ca.1777)
SAMUEL I
(F 1780, fl 1784)
JOHN FREDERICK III
(B 1753, F 1780,
D 1791)
=girl from Sunbury,
Middlesex
?
Devereaux Jones
(Bristol; scrivener,
F 1797)
MARY
(fl ca.1777-85)
SAMUEL II
(F 1780, fl 1784)
ISAAC
(F 1777, fl 1784)
JOHN FREDERICK II
(F 1780, fl 1784,
D by 1791?)
?
Devereaux Jones
(Bristol; scrivener,
F 1797)
Sarah=WILLIAM LANSDOWN
(Bristol; pipemaker
F 1784)

CALLOWAY/KELLOWAY/KELLAWAY



John
(Mainehill, Dorset; fuller and clothworker;
poss. D bet. 1641 and 1651)

JOHN
(A 1641, F 1648, fl 1670)
=1) Elizabeth (fl 1650, D by 1651)
=2) Cicily (fl 1651-70)

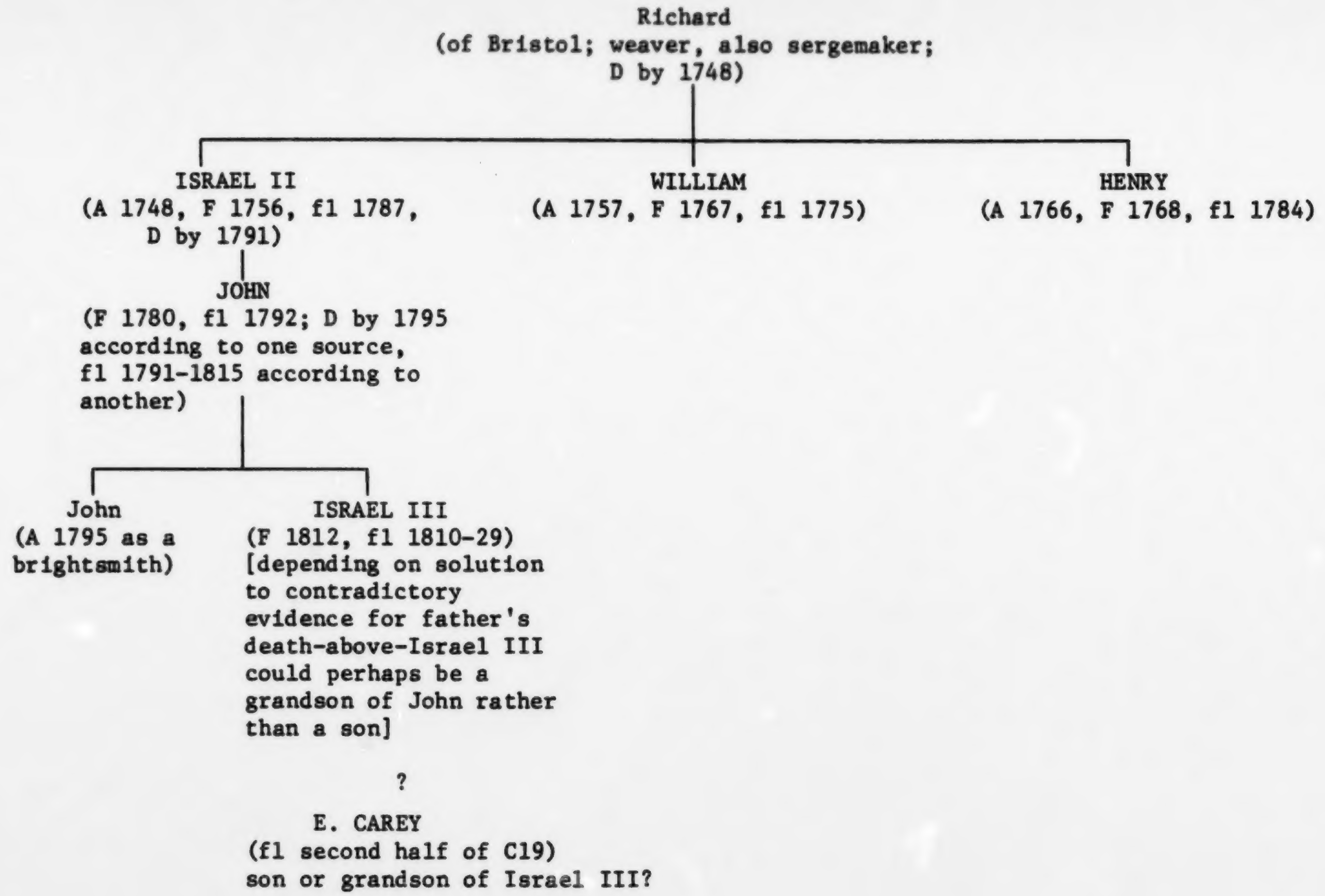
PETER
(A 1651)

PHILIP I = 1) Anne (fl 1704/5-1711)
(A 1670, F 1680/1, fl 1722) 2) either Christian or Alice
(former fl 1713/4-19,
latter fl 1717)

PHILIP II = either Alice or Christian
(see above)

CAREY

ISRAEL I - fl 1722?



Richard
(of Bristol; weaver, also sergemaker;
D by 1748)

ISRAEL II
(A 1748, F 1756, fl 1787,
D by 1791)

WILLIAM
(A 1757, F 1767, fl 1775)

HENRY
(A 1766, F 1768, fl 1784)

JOHN
(F 1780, fl 1792; D by 1795
according to one source,
fl 1791-1815 according to
another)

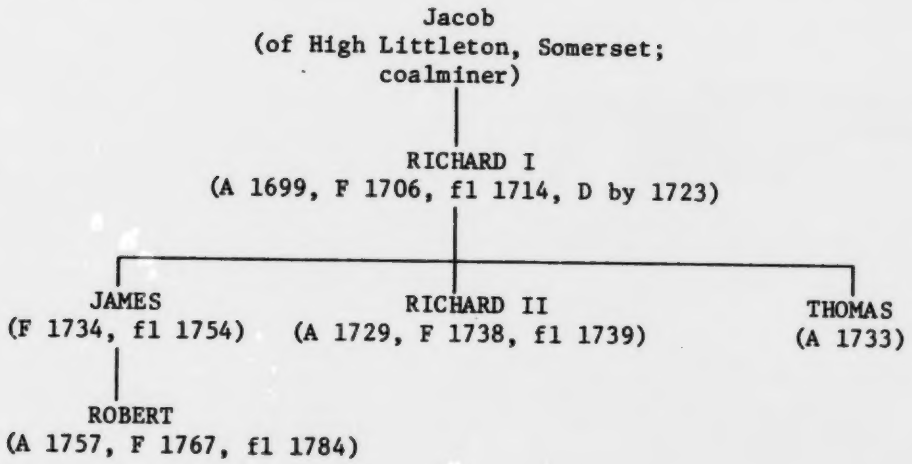
John
(A 1795 as a
brightsmith)

ISRAEL III
(F 1812, fl 1810-29)
[depending on solution
to contradictory
evidence for father's
death-above-Israel III
could perhaps be a
grandson of John rather
than a son]

?

E. CAREY
(fl second half of C19)
son or grandson of Israel III?

CARTER



Jacob
(of High Littleton, Somerset;
coalminer)

RICHARD I
(A 1699, F 1706, fl 1714, D by 1723)

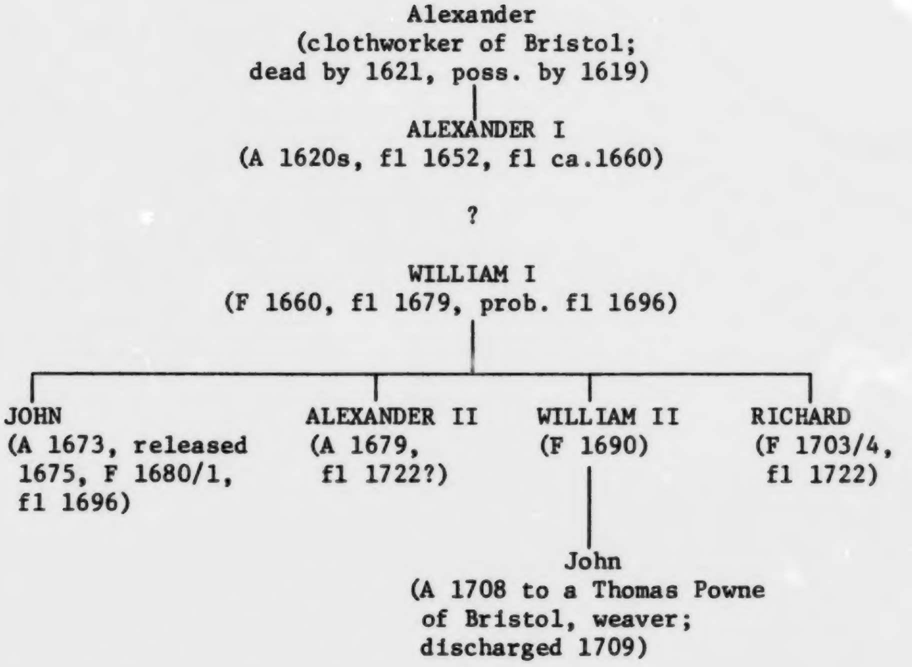
JAMES
(F 1734, fl 1754)

RICHARD II
(A 1729, F 1738, fl 1739)

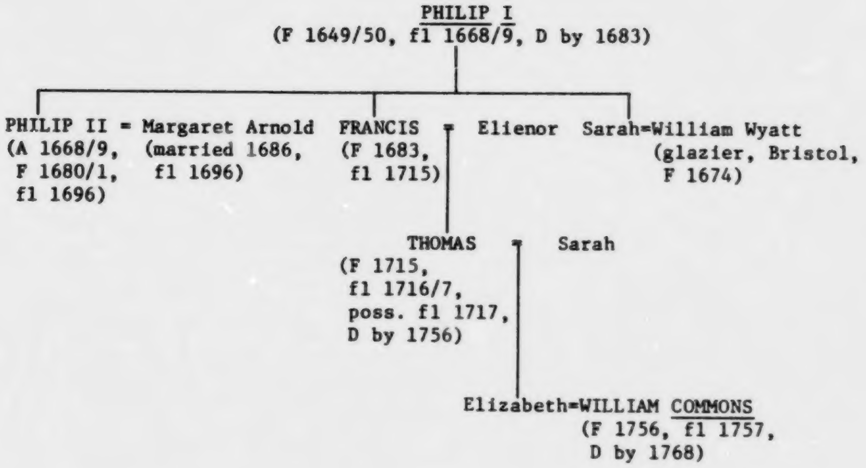
THOMAS
(A 1733)

ROBERT
(A 1757, F 1767, fl 1784)

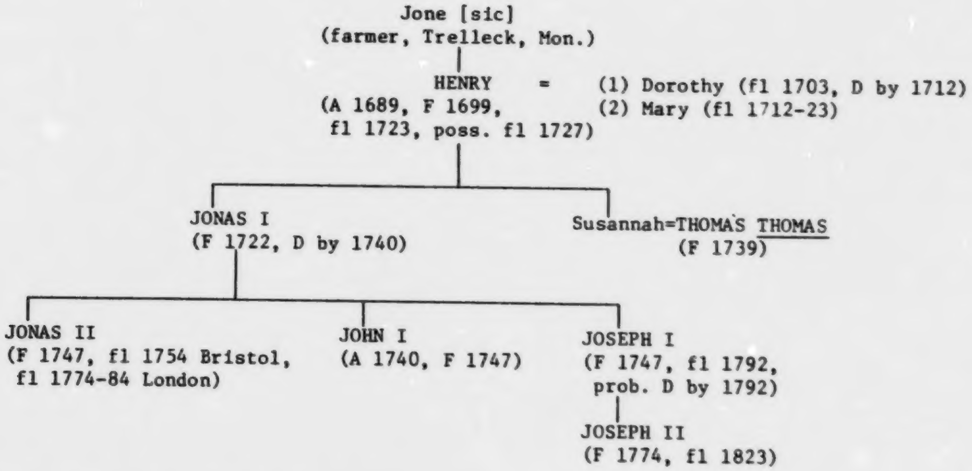
CHERRINGTON


Alexander (clothworker of Bristol; dead by 1621, poss. by 1619)
ALEXANDER I (A 1620s, fl 1652, fl ca.1660)
?
WILLIAM I (F 1660, fl 1679, prob. fl 1696)
JOHN (A 1673, released 1675, F 1680/1, fl 1696)
ALEXANDER II (A 1679, fl 1722?)
WILLIAM II (F 1690)
RICHARD (F 1703/4, fl 1722)
John (A 1708 to a Thomas Powne of Bristol, weaver; discharged 1709)

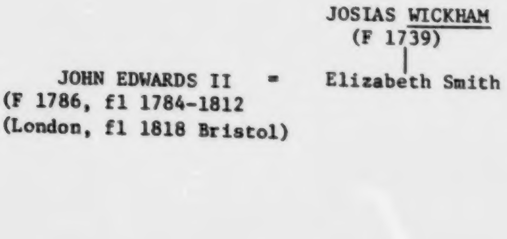
EDWARDS 1


PHILIP I
(F 1649/50, fl 1668/9, D by 1683)
PHILIP II = Margaret Arnold
(A 1668/9, F 1680/1, fl 1696)
(married 1686, fl 1696)
FRANCIS = Elienor
(F 1683, fl 1715)
Sarah=William Wyatt
(glazier, Bristol, F 1674)
THOMAS = Sarah
(F 1715, fl 1716/7, poss. fl 1717, D by 1756)
Elizabeth=WILLIAM COMMONS
(F 1756, fl 1757, D by 1768)

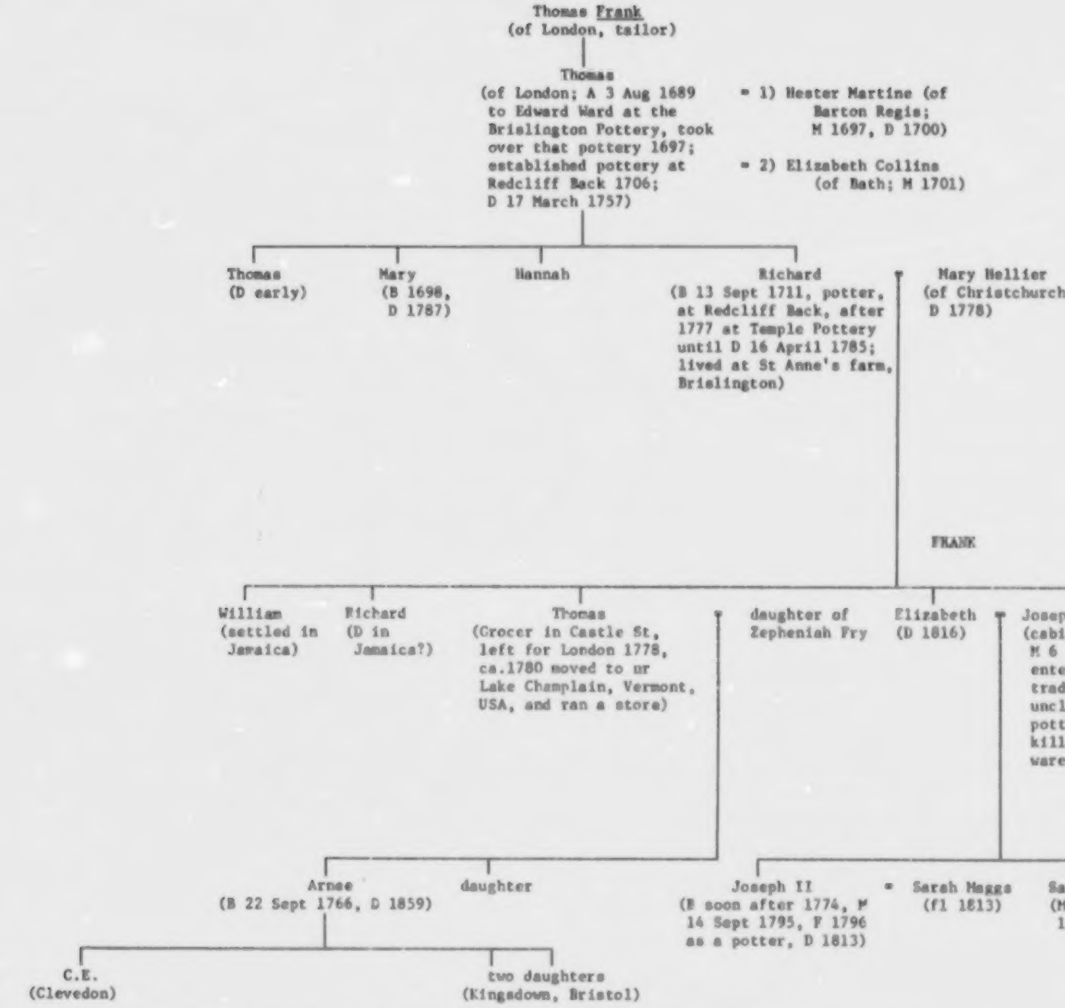
EDWARDS 2


Jone [sic]
(farmer, Trelleck, Mon.)
HENRY = (1) Dorothy (fl 1703, D by 1712)
(2) Mary (fl 1712-23)
(A 1689, F 1699, fl 1723, poss. fl 1727)
JONAS I
(F 1722, D by 1740)
Susannah=THOMAS THOMAS
(F 1739)
JONAS II
(F 1747, fl 1754 Bristol, fl 1774-84 London)
JOHN I
(A 1740, F 1747)
JOSEPH I
(F 1747, fl 1792, prob. D by 1792)
JOSEPH II
(F 1774, fl 1823)

EDWARDS 3


JOSIAS WICKHAM
(F 1739)
JOHN EDWARDS II = Elizabeth Smith
(F 1786, fl 1784-1812
(London, fl 1818 Bristol)

FRANK and RING



Thomas Frank
(of London, tailor)

Thomas
(of London; A 3 Aug 1689 to Edward Ward at the Brislington Pottery, took over that pottery 1697; established pottery at Redcliff Back 1706; D 17 March 1757)

= 1) Hester Martine (of Barton Regis; M 1697, D 1700)

= 2) Elizabeth Collins (of Bath; M 1701)

Thomas
(D early)

Mary
(B 1698, D 1787)

Hannah

Richard
(B 13 Sept 1711, potter, at Redcliff Back, after 1777 at Temple Pottery until D 16 April 1785; lived at St Anne's farm, Brislington)

= Mary Hellier
(of Christchurch
D 1778)

FRANK

William
(settled in Jamaica)

Richard
(D in Jamaica?)

Thomas
(Grocer in Castle St, left for London 1778, ca.1780 moved to nr Lake Champlain, Vermont, USA, and ran a store)

= daughter of Zepheniah Fry

Elizabeth
(D 1816)

= Josep
(cabi
M 6
ente
trad
uncl
pott
kill
ware

Arnee
(B 22 Sept 1766, D 1859)

daughter

Joseph II
(B soon after 1774, M 14 Sept 1795, F 1796 as a potter, D 1813)

= Sarah Maggs
(fl 1813)

Sa
(M
1

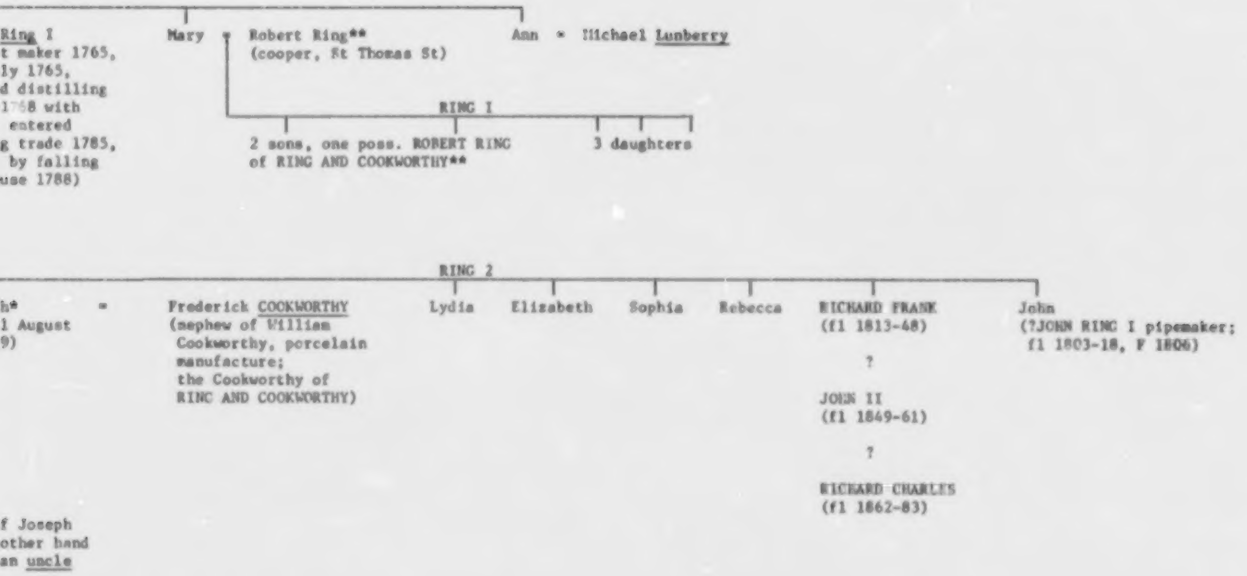
C.E.
(Clevedon)

two daughters
(Kingsdown, Bristol)

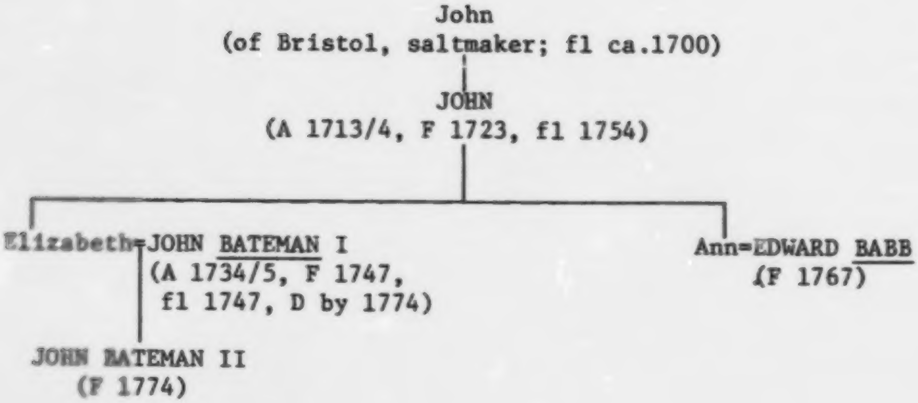
Family tree based mainly on information from Pountney, who, however, does not appear to be a reliable source.

*Also called Susannah (prob. erroneously) in Pountney.

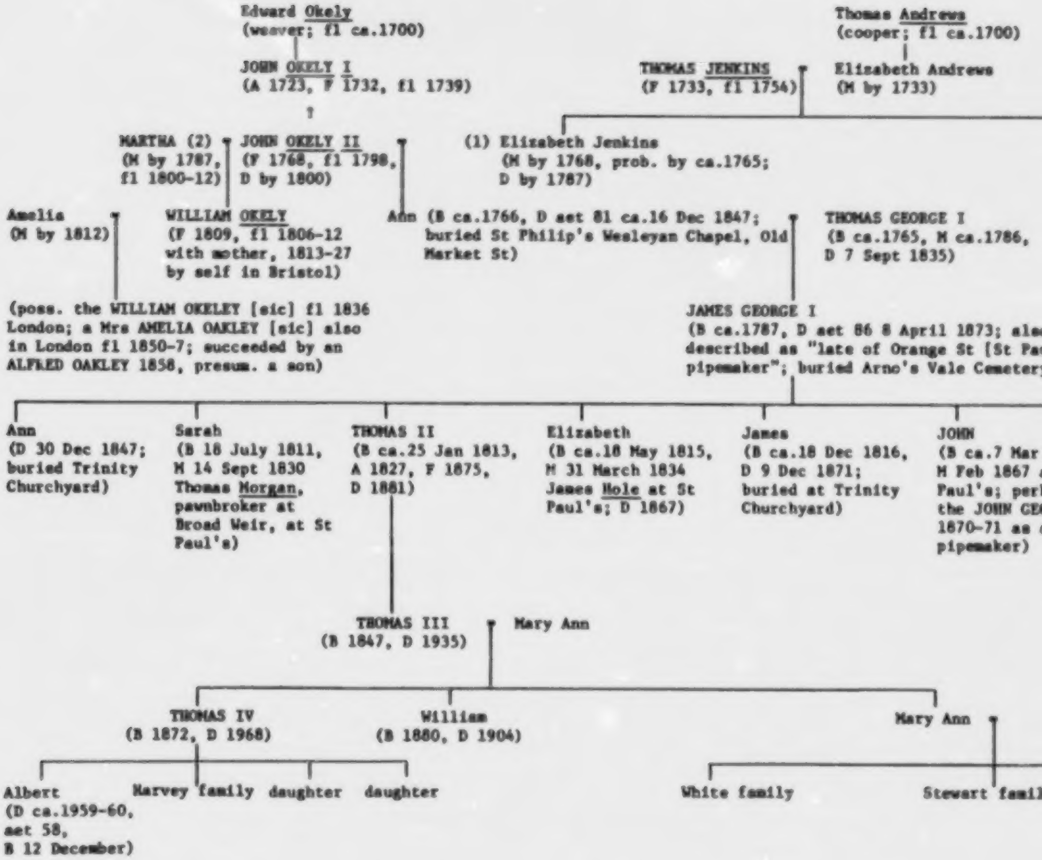
**Robert Ring of Ring and Cookworthy, according to Pountney, was free 1760 as a hooper and is also described as a cousin
Ring II the potter. If he were a cousin of Joseph Ring II then he could be a son of Robert Ring and Mary Frank; on th
the freedom date would suit Robert Ring husband of Mary Frank in which case Robert Ring of Ring and Cookworthy would b
of Joseph Ring II.


Ring I
t maker 1765,
ly 1765,
d distilling
1768 with
entered
g trade 1785,
by falling
use 1788)
Mary = Robert Ring**
(cooper, St Thomas St)
Ann = Michael Lunberry
RING 1
2 sons, one poss. ROBERT RING
of RING AND COOKWORTHY**
3 daughters
RING 2
h* =
1 August
9)
Frederick COOKWORTHY
(nephew of William
Cookworthy, porcelain
manufacture;
the Cookworthy of
RING AND COOKWORTHY)
Lydia
Elizabeth
Sophia
Rebecca
RICHARD FRANK
(fl 1813-48)
?
JOHN II
(fl 1849-61)
?
RICHARD CHARLES
(fl 1862-83)
John
(?JOHN RING I pipemaker;
fl 1803-18, F 1806)
f Joseph
other hand
an uncle

FRYER


John
(of Bristol, saltmaker; fl ca.1700)
JOHN
(A 1713/4, F 1723, fl 1754)
Elizabeth=JOHN BATEMAN I
(A 1734/5, F 1747,
fl 1747, D by 1774)
Ann=EDWARD BABB
(F 1767)
JOHN BATEMAN II
(F 1774)

GEORGE


Edward Okely
(weaver; fl ca.1700)
JOHN OKELY I
(A 1723, F 1732, fl 1739)
?
MARTHA (2)
(M by 1787,
fl 1800-12)
JOHN OKELY II
(F 1768, fl 1798,
D by 1800)
Thomas Andrews
(cooper; fl ca.1700)
THOMAS JENKINS
(F 1733, fl 1754)
Elizabeth Andrews
(M by 1733)
(1) Elizabeth Jenkins
(M by 1768, prob. by ca.1765;
D by 1787)
Amelia
(M by 1812)
WILLIAM OKELY
(F 1809, fl 1806-12
with mother, 1813-27
by self in Bristol)
Ann (B ca.1766, D aet 81 ca.16 Dec 1847;
buried St Philip's Wesleyan Chapel, Old
Market St)
THOMAS GEORGE I
(B ca.1765, M ca.1786,
D 7 Sept 1835)
(poss. the WILLIAM OKELEY [sic] fl 1836
London; a Mrs AMELIA OAKLEY [sic] also
in London fl 1850-7; succeeded by an
ALFRED OAKLEY 1858, presum. a son)
JAMES GEORGE I
(B ca.1787, D aet 86 8 April 1873; als
described as "late of Orange St [St Pa
pipemaker"; buried Arno's Vale Cemeter
Ann
(D 30 Dec 1847;
buried Trinity
Churchyard)
Sarah
(B 18 July 1811,
M 14 Sept 1830
Thomas Morgan,
pawnbroker at
Broad Weir, at St
Paul's)
THOMAS II
(B ca.25 Jan 1813,
A 1827, F 1875,
D 1881)
Elizabeth
(B ca.18 May 1815,
M 31 March 1834
James Hole at St
Paul's; D 1867)
James
(B ca.18 Dec 1816,
D 9 Dec 1871;
buried at Trinity
Churchyard)
JOHN
(B ca.7 Mar
M Feb 1867
Paul's; per
the JOHN GE
1870-71 as
pipemaker)
THOMAS III
(B 1847, D 1935)
Mary Ann
THOMAS IV
(B 1872, D 1968)
William
(B 1880, D 1904)
Mary Ann
Albert
(D ca.1959-60,
aet 58,
B 12 December)
Harvey family
daughter
daughter
White family
Stewart famil

JOSEPH JENKINS
(F 1768, fl 1784)

's],

819
St
ps
GE fl

Caroline
(B ca.14 Feb
1822, M Nov 1841
James Roach at
St Mary Redcliff)

Cornelius
(B 21 Dec 1823;
D 1892)

Matilda
(B May 1825,
M 5 Jan 1865
Charles Williams
at Picton St
Registry Office)

Eliza
(B 1826,
D ca.2 mths old;
buried at Temple
Churchyard)

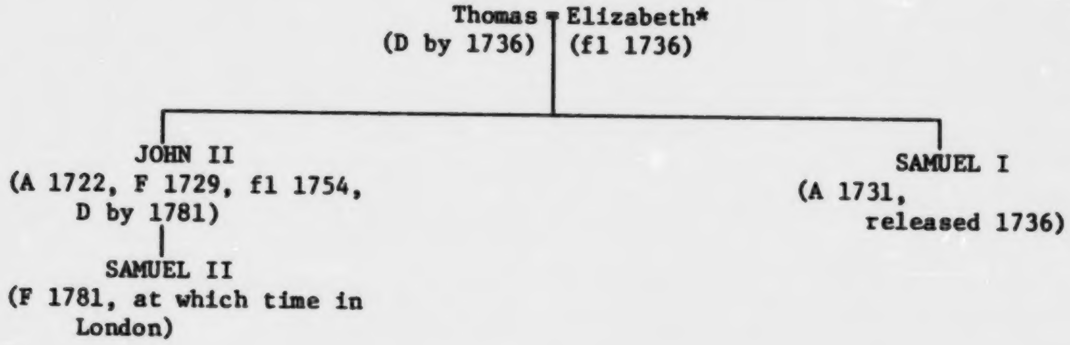
Mary Ann
(B 1826,
D aet 5;
buried at Trinity
Churchyard)

Joseph
(B 1827
D ca.2 mths;
buried at Temple
Churchyard)

Angelina
(B ca.7 May 1832,
M 7 April 1855
George Millard
at St Paul's)

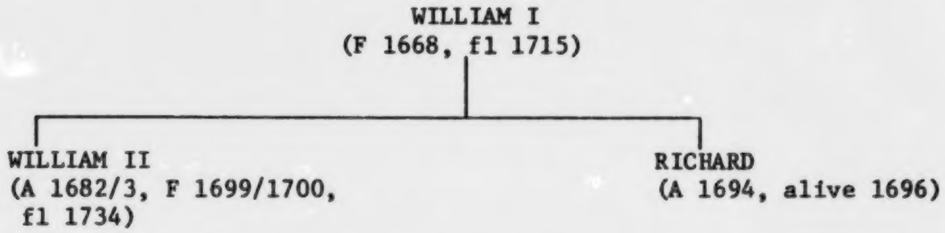
son son son son daughter
(D young)

HARRIS

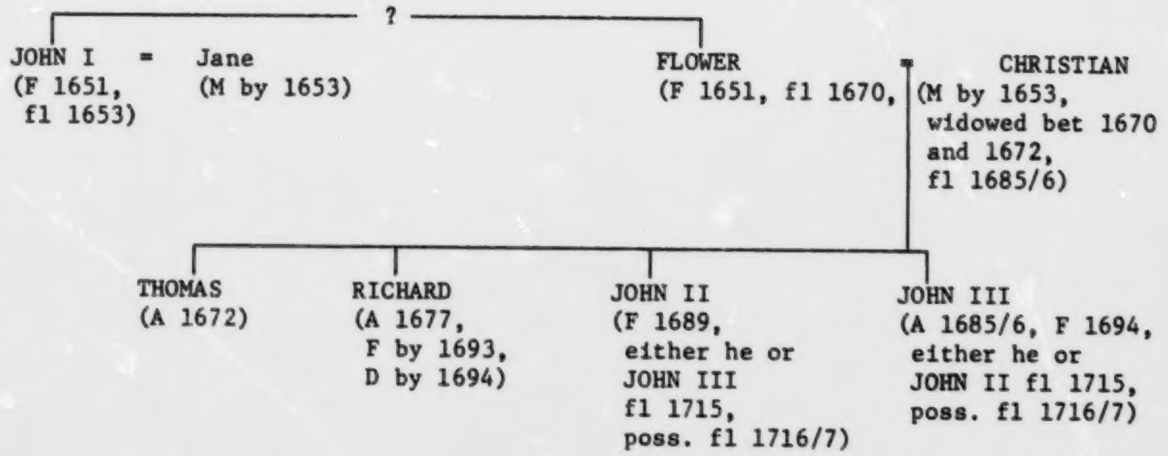

Thomas = Elizabeth*
(D by 1736)
(fl 1736)
JOHN II
(A 1722, F 1729, fl 1754, D by 1781)
SAMUEL I
(A 1731, released 1736)
SAMUEL II
(F 1781, at which time in London)

*Elizabeth referred to as Samuel I's mother and widow of Thomas Harris when Samuel I discharged 1736; it is not certain that she was also the mother of John II.

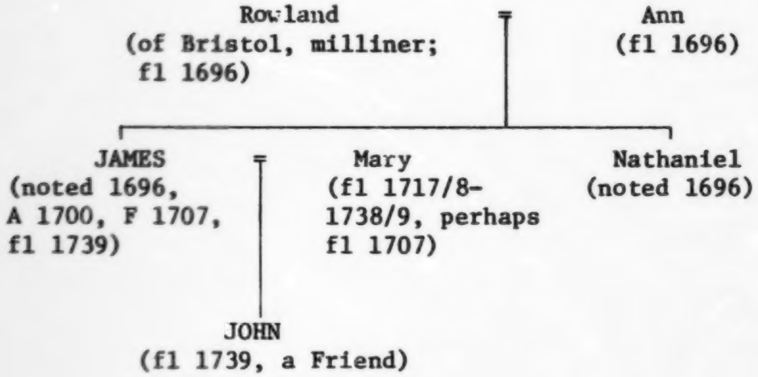
HICKES


WILLIAM I
(F 1668, fl 1715)
WILLIAM II
(A 1682/3, F 1699/1700, fl 1734)
RICHARD
(A 1694, alive 1696)

HUNT

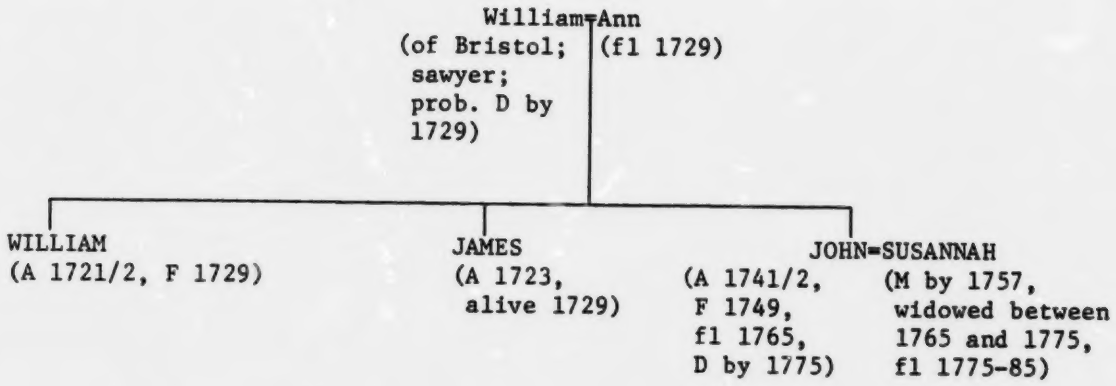

?
JOHN I = Jane
(F 1651, fl 1653)
(M by 1653)
FLOWER = CHRISTIAN
(F 1651, fl 1670,
(M by 1653, widowed bet 1670 and 1672, fl 1685/6)
THOMAS
(A 1672)
RICHARD
(A 1677, F by 1693, D by 1694)
JOHN II
(F 1689, either he or JOHN III fl 1715, poss. fl 1716/7)
JOHN III
(A 1685/6, F 1694, either he or JOHN II fl 1715, poss. fl 1716/7)

JENKINS

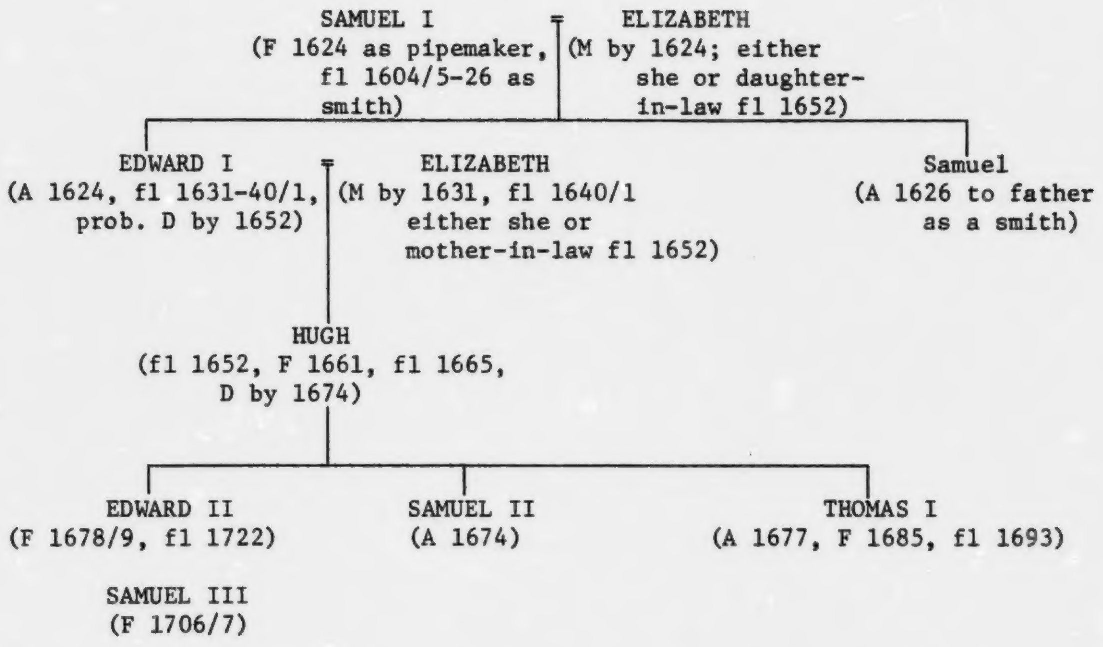

Rowland
(of Bristol, milliner;
fl 1696)
Ann
(fl 1696)
JAMES
(noted 1696,
A 1700, F 1707,
fl 1739)
Mary
(fl 1717/8-
1738/9, perhaps
fl 1707)
Nathaniel
(noted 1696)
JOHN
(fl 1739, a Friend)

As there are no definite references to Mary Jenkins, James's wife, prior to 1717/8 but two references earlier to an unnamed wife, it is possible Mary was the stepmother of John Jenkins rather than the mother.

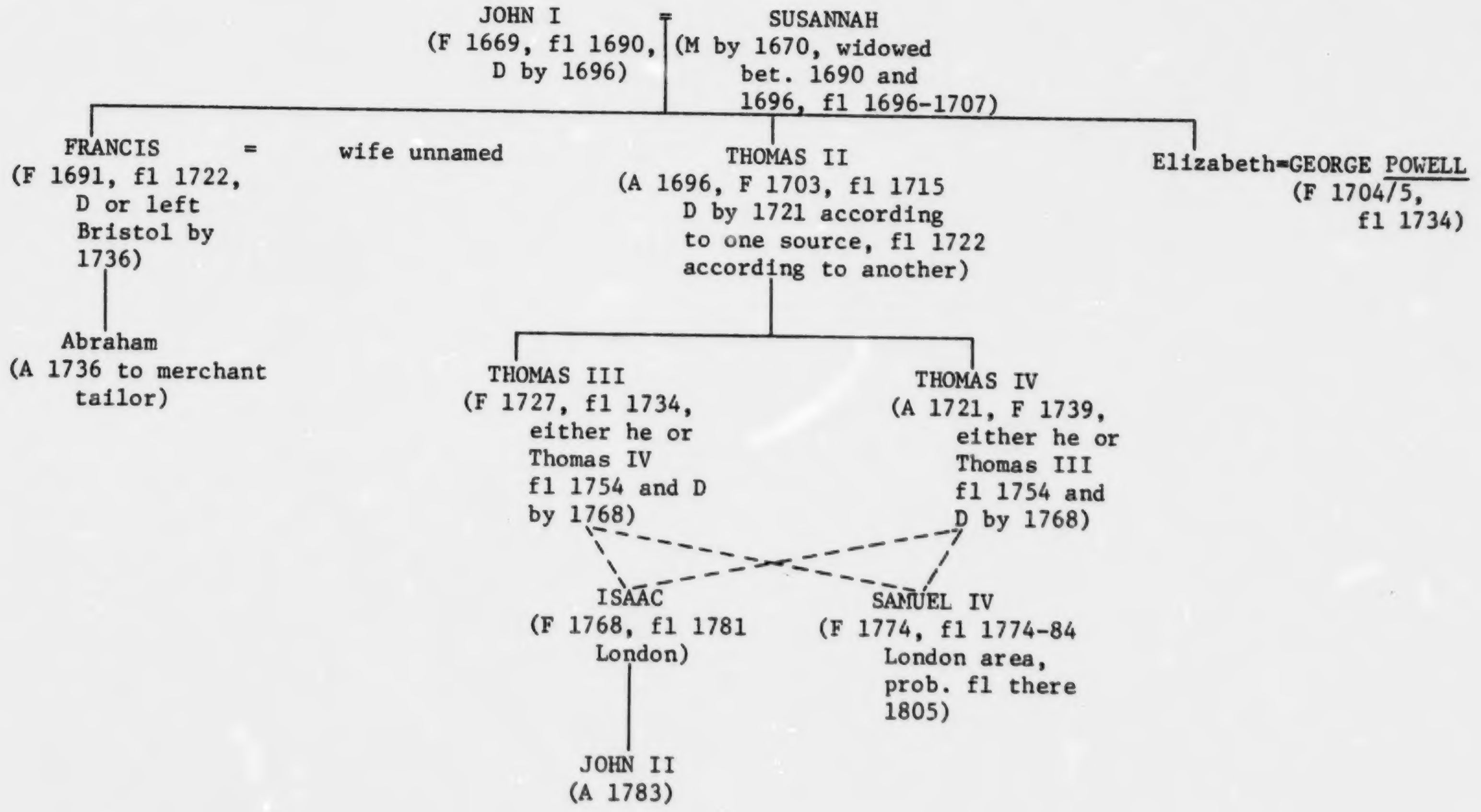
LEE


William=Ann
(of Bristol; sawyer; prob. D by 1729)
(fl 1729)
WILLIAM
(A 1721/2, F 1729)
JAMES
(A 1723, alive 1729)
JOHN=SUSANNAH
(A 1741/2, F 1749, fl 1765, D by 1775)
(M by 1757, widowed between 1765 and 1775, fl 1775-85)

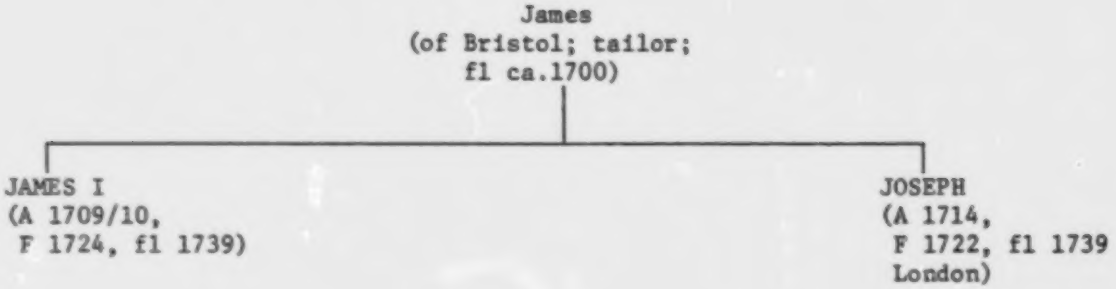
LEWIS 1


SAMUEL I
(F 1624 as pipemaker, fl 1604/5-26 as smith)
=
ELIZABETH
(M by 1624; either she or daughter-in-law fl 1652)
EDWARD I
(A 1624, fl 1631-40/1, prob. D by 1652)
=
ELIZABETH
(M by 1631, fl 1640/1 either she or mother-in-law fl 1652)
Samuel
(A 1626 to father as a smith)
HUGH
(fl 1652, F 1661, fl 1665, D by 1674)
EDWARD II
(F 1678/9, fl 1722)
SAMUEL II
(A 1674)
THOMAS I
(A 1677, F 1685, fl 1693)
SAMUEL III
(F 1706/7)

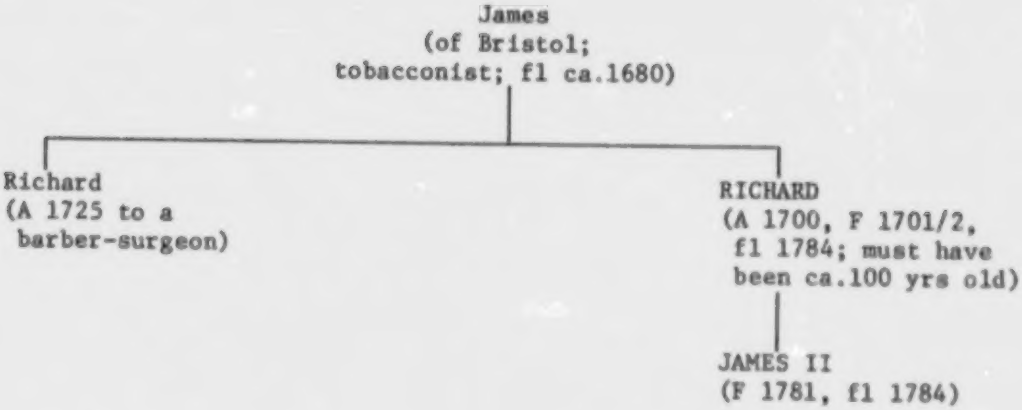
LEWIS 2


JOHN I
(F 1669, fl 1690, D by 1696)
=
SUSANNAH
(M by 1670, widowed bet. 1690 and 1696, fl 1696-1707)
FRANCIS
(F 1691, fl 1722, D or left Bristol by 1736)
=
wife unnamed
THOMAS II
(A 1696, F 1703, fl 1715 D by 1721 according to one source, fl 1722 according to another)
Elizabeth=GEORGE POWELL
(F 1704/5, fl 1734)
Abraham
(A 1736 to merchant tailor)
THOMAS III
(F 1727, fl 1734, either he or Thomas IV fl 1754 and D by 1768)
THOMAS IV
(A 1721, F 1739, either he or Thomas III fl 1754 and D by 1768)
ISAAC
(F 1768, fl 1781 London)
SAMUEL IV
(F 1774, fl 1774-84 London area, prob. fl there 1805)
JOHN II
(A 1783)

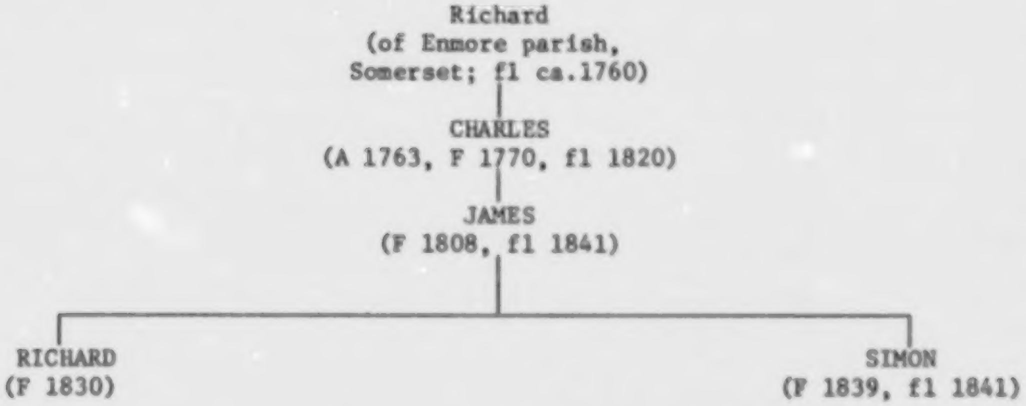
MIL[L]SOM 1


James
(of Bristol; tailor;
fl ca.1700)
JAMES I
(A 1709/10,
F 1724, fl 1739)
JOSEPH
(A 1714,
F 1722, fl 1739
London)

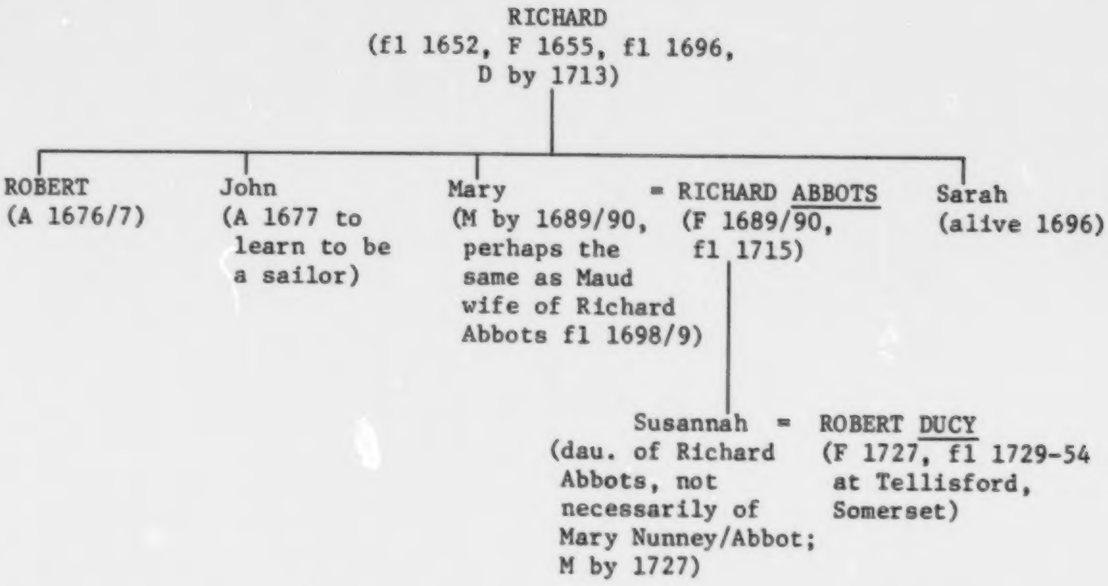
MIL[L]SOM 2


James
(of Bristol;
tobacconist; fl ca.1680)
Richard
(A 1725 to a
barber-surgeon)
RICHARD
(A 1700, F 1701/2,
fl 1784; must have
been ca.100 yrs old)
JAMES II
(F 1781, fl 1784)

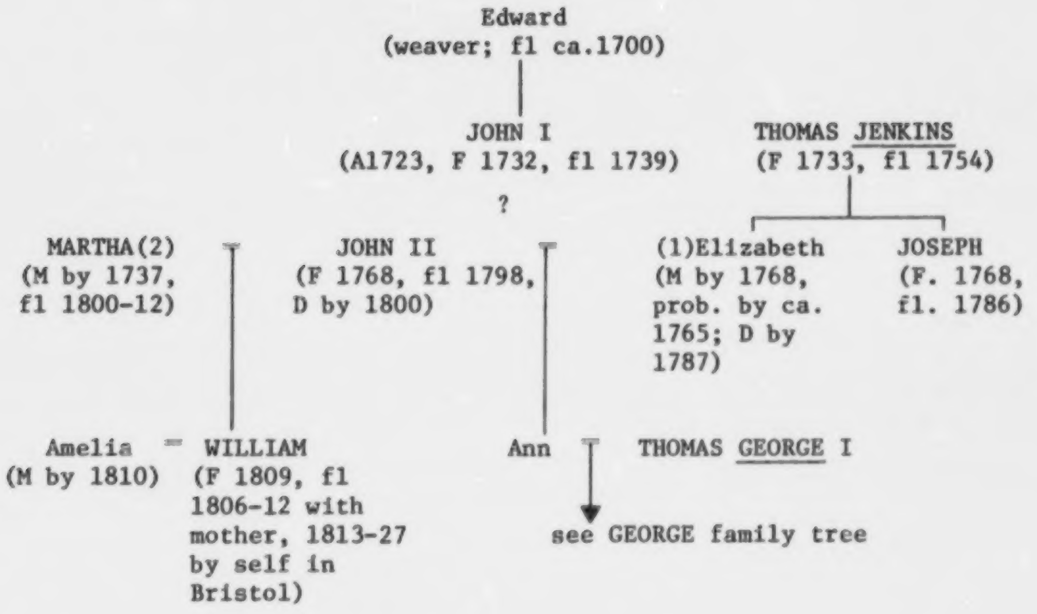
MOON


Richard
(of Enmore parish,
Somerset; fl ca.1760)
CHARLES
(A 1763, F 1770, fl 1820)
JAMES
(F 1808, fl 1841)
RICHARD
(F 1830)
SIMON
(F 1839, fl 1841)

NUNNEY

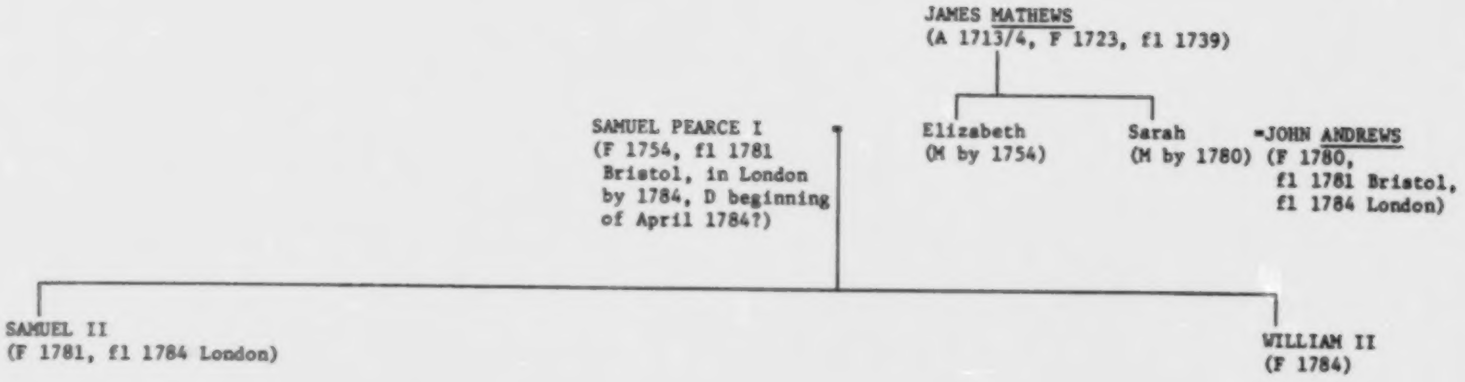

RICHARD (fl 1652, F 1655, fl 1696, D by 1713)
ROBERT (A 1676/7)
John (A 1677 to learn to be a sailor)
Mary (M by 1689/90, perhaps the same as Maud wife of Richard Abbots fl 1698/9)
= RICHARD ABBOTS (F 1689/90, fl 1715)
Sarah (alive 1696)
Susannah (dau. of Richard Abbots, not necessarily of Mary Nunney/Abbot; M by 1727)
= ROBERT DUCY (F 1727, fl 1729-54 at Tellisford, Somerset)

OKELY

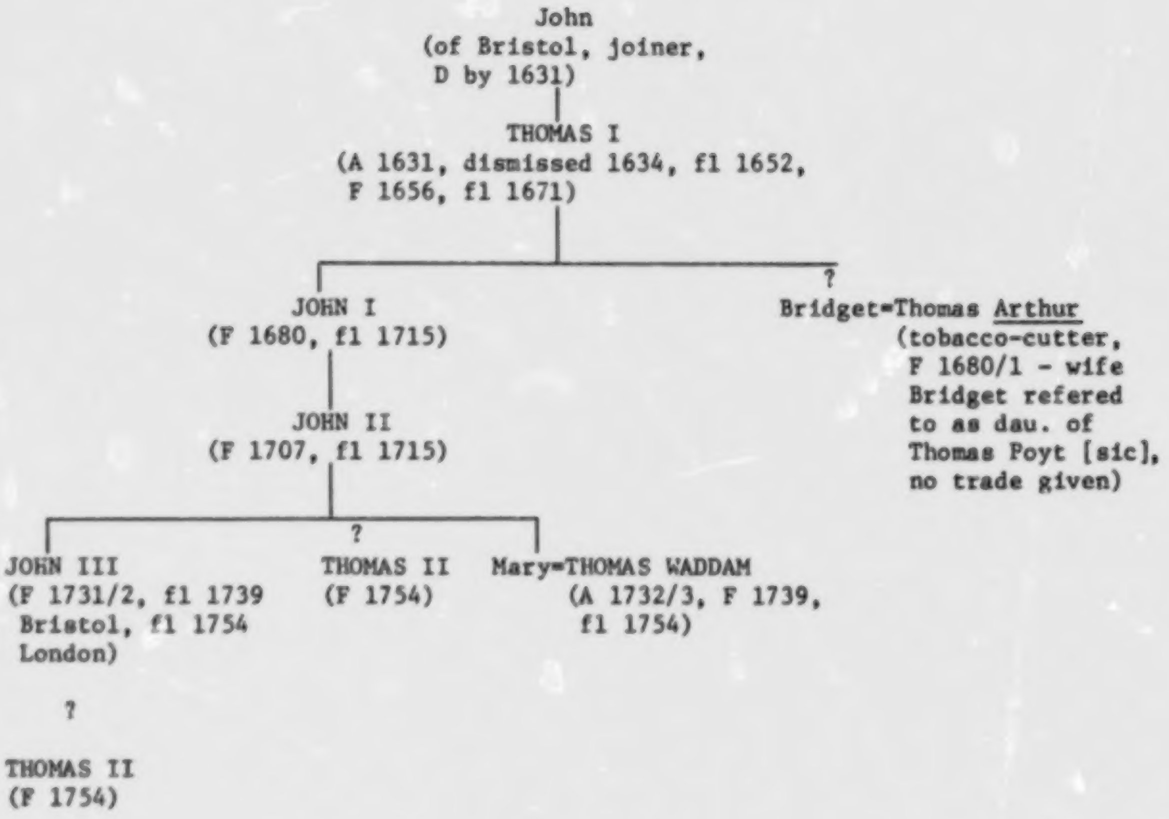

Edward
(weaver; fl ca.1700)
JOHN I
(A1723, F 1732, fl 1739)
THOMAS JENKINS
(F 1733, fl 1754)
?
MARTHA(2)
(M by 1737,
fl 1800-12)
JOHN II
(F 1768, fl 1798,
D by 1800)
(1)Elizabeth
(M by 1768,
prob. by ca.
1765; D by
1787)
JOSEPH
(F. 1768,
fl. 1786)
Amelia
(M by 1810)
=
WILLIAM
(F 1809, fl
1806-12 with
mother, 1813-27
by self in
Bristol)
Ann
THOMAS GEORGE I
see GEORGE family tree

(possibly WILLIAM OKELEY (sic)
fl 1836 London; a Mrs Amelia
OAKLEY (sic) also in London
fl 1850-7; succeeded by an
ALFRED OAKLEY 1858, presumably
a son)

PEARCE


JAMES MATHEWS
(A 1713/4, F 1723, fl 1739)
Elizabeth
(M by 1754)
Sarah
(M by 1780)
=JOHN ANDREWS
(F 1780,
fl 1781 Bristol,
fl 1784 London)
SAMUEL PEARCE I
(F 1754, fl 1781
Bristol, in London
by 1784, D beginning
of April 1784?)
SAMUEL II
(F 1781, fl 1784 London)
WILLIAM II
(F 1784)

POYTE



John
(of Bristol, joiner,
D by 1631)

THOMAS I
(A 1631, dismissed 1634, fl 1652,
F 1656, fl 1671)

JOHN I
(F 1680, fl 1715)

?
Bridget=Thomas Arthur
(tobacco-cutter,
F 1680/1 - wife
Bridget refered
to as dau. of
Thomas Poyt [sic],
no trade given)

JOHN II
(F 1707, fl 1715)

JOHN III
(F 1731/2, fl 1739
Bristol, fl 1754
London)

?
THOMAS II
(F 1754)

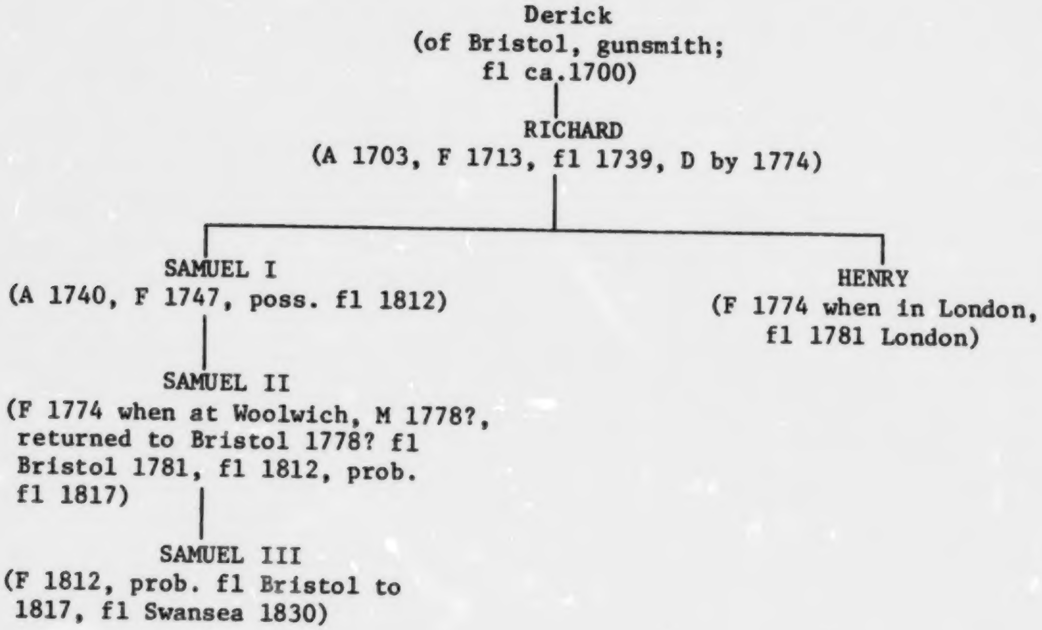
Mary=THOMAS WADDAM
(A 1732/3, F 1739,
fl 1754)

?

THOMAS II
(F 1754)

(Thomas Poyte II more probably son of John Poyte III)

RICHARDS



Derick
(of Bristol, gunsmith;
fl ca.1700)

RICHARD
(A 1703, F 1713, fl 1739, D by 1774)

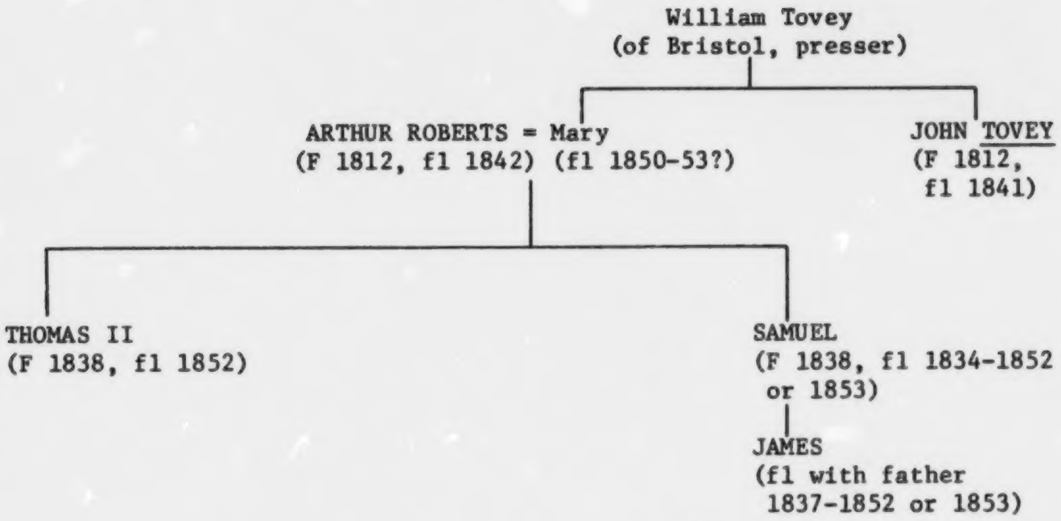
SAMUEL I
(A 1740, F 1747, poss. fl 1812)

HENRY
(F 1774 when in London,
fl 1781 London)

SAMUEL II
(F 1774 when at Woolwich, M 1778?,
returned to Bristol 1778? fl
Bristol 1781, fl 1812, prob.
fl 1817)

SAMUEL III
(F 1812, prob. fl Bristol to
1817, fl Swansea 1830)

ROBERTS 1


William Tovey
(of Bristol, presser)
ARTHUR ROBERTS = Mary
(F 1812, fl 1842) (fl 1850-53?)
JOHN TOVEY
(F 1812,
fl 1841)
THOMAS II
(F 1838, fl 1852)
SAMUEL
(F 1838, fl 1834-1852
or 1853)
JAMES
(fl with father
1837-1852 or 1853)

ROBERTS 2

THOMAS I = SARAH
(fl 1815-33) (fl 1835-53)

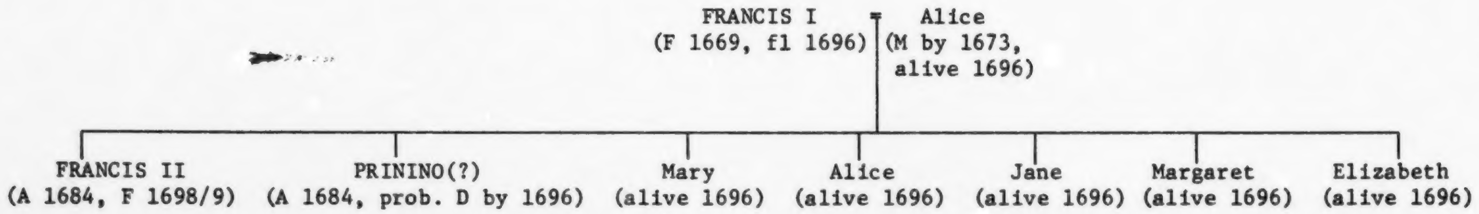
?

JOHN
(fl 1842-65)

?

THOMAS III
(fl 1866-1869 or 1870)

RUSSELL


FRANCIS I
(F 1669, fl 1696)
=
Alice
(M by 1673,
alive 1696)
FRANCIS II
(A 1684, F 1698/9)
PRININO(?)
(A 1684, prob. D by 1696)
Mary
(alive 1696)
Alice
(alive 1696)
Jane
(alive 1696)
Margaret
(alive 1696)
Elizabeth
(alive 1696)

SHOWELL

William
(of Bristol, cordwainer)

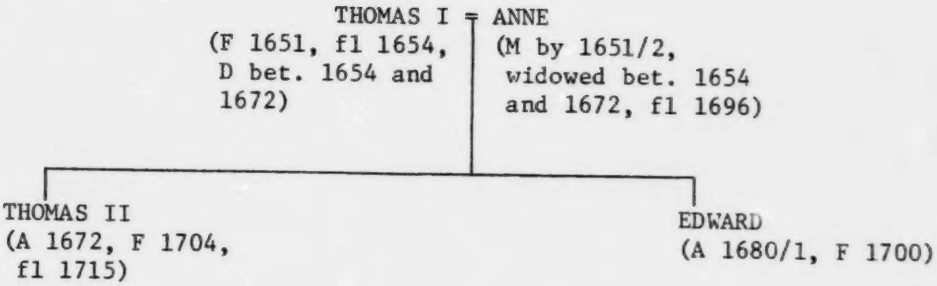
WILLIAM
(fl 1775, A 1776,
F 1784 London)

Hester=JAMES CARRINGTON
(F 1781, fl 1784)

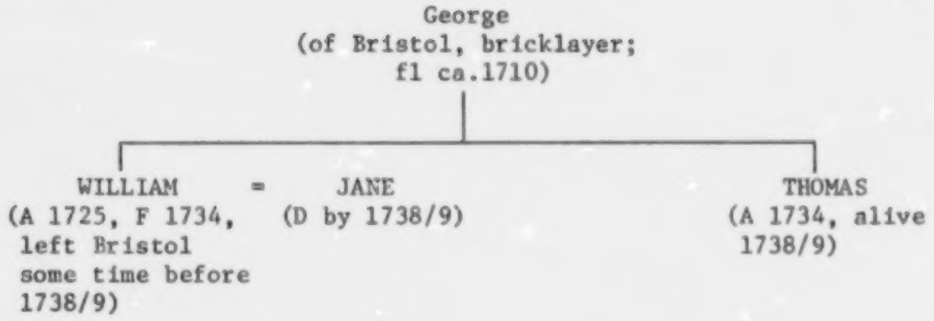
SINDERLIN

John
(of Bristol, weaver;
D by 1726)
|
EDWARD
(A 1726, F 1739, fl 1775)
|
WILLIAM
(F 1768)

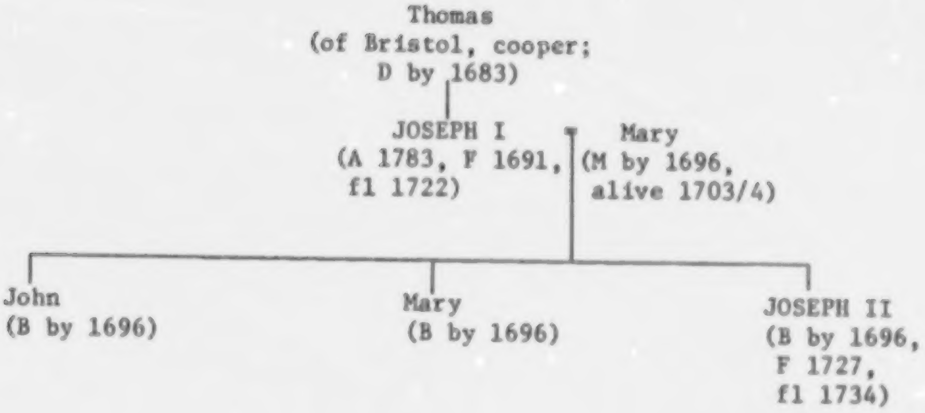
SMITH


THOMAS I = ANNE
(F 1651, fl 1654,
D bet. 1654 and
1672)
(M by 1651/2,
widowed bet. 1654
and 1672, fl 1696)
THOMAS II
(A 1672, F 1704,
fl 1715)
EDWARD
(A 1680/1, F 1700)

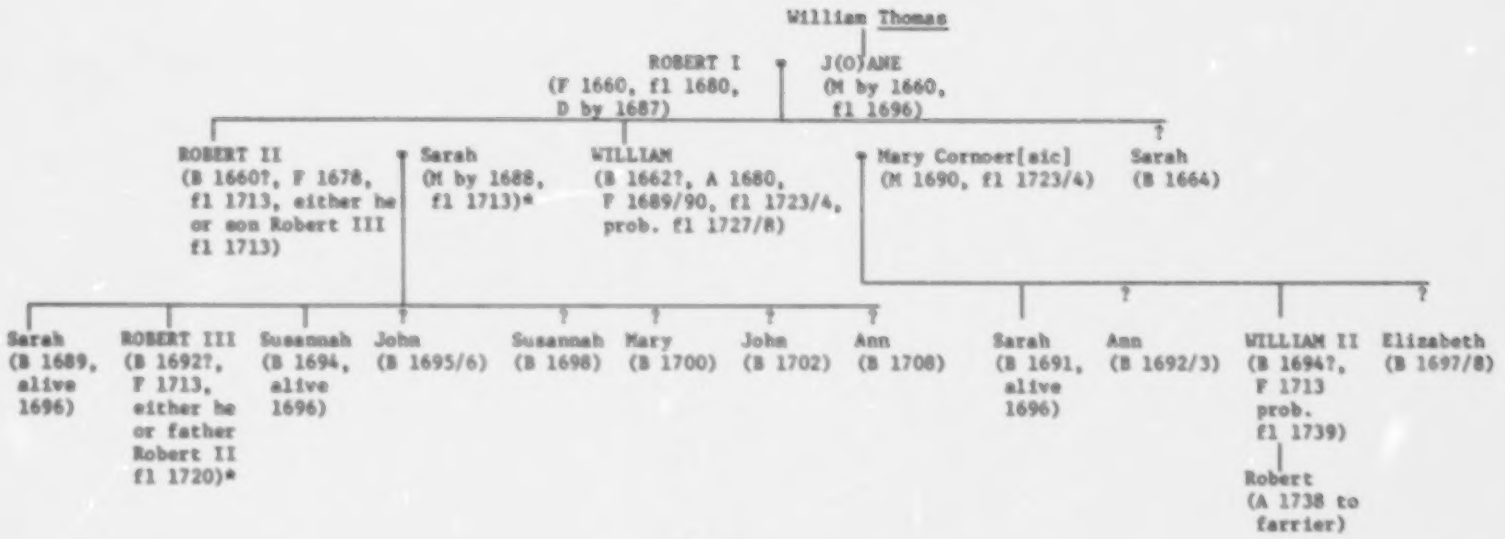
SPENCER


George
(of Bristol, bricklayer;
fl ca.1710)
WILLIAM = JANE
(A 1725, F 1734,
left Bristol
some time before
1738/9)
(D by 1738/9)
THOMAS
(A 1734, alive
1738/9)

STANFORD


Thomas
(of Bristol, cooper;
D by 1683)
JOSEPH I
(A 1783, F 1691,
fl 1722)
Mary
(M by 1696,
alive 1703/4)
John
(B by 1696)
Mary
(B by 1696)
JOSEPH II
(B by 1696,
F 1727,
fl 1734)

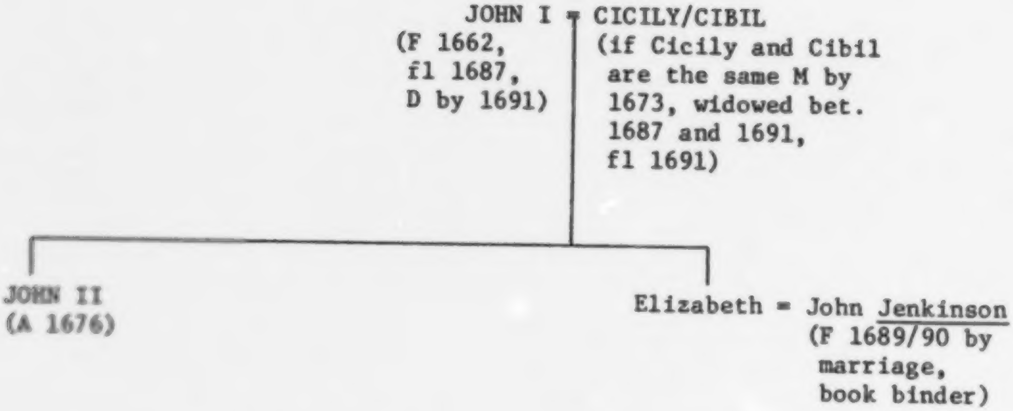
TIPPET


William Thomas
ROBERT I (F 1660, fl 1680, D by 1687)
J(O)ANE (M by 1660, fl 1696)
ROBERT II (B 1660?, F 1678, fl 1713, either he or son Robert III fl 1713)
Sarah (M by 1688, fl 1713)*
WILLIAM (B 1662?, A 1680, F 1689/90, fl 1723/4, prob. fl 1727/8)
Mary Cornoer[sic] (M 1690, fl 1723/4)
?
Sarah (B 1664)
Sarah (B 1689, alive 1696)
ROBERT III (B 1692?, F 1713, either he or father Robert II fl 1720)*
Susannah (B 1694, alive 1696)
?
John (B 1695/6)
?
Susannah (B 1698)
?
Mary (B 1700)
?
John (B 1702)
?
Ann (B 1708)
Sarah (B 1691, alive 1696)
?
Ann (B 1692/3)
WILLIAM II (B 1694?, F 1713 prob. fl 1739)
?
Elizabeth (B 1697/8)
Robert (A 1738 to farrier)

*Either Robert II or Robert III Tippet had a wife Mary by 1720

Question-marks above names denote names taken from St James parish registers and probably children of the Robert and William Tippets

TUCKER


JOHN I = CICILY/CIBIL
(F 1662, fl 1687, D by 1691)
(if Cicily and Cibil are the same M by 1673, widowed bet. 1687 and 1691, fl 1691)
JOHN II
(A 1676)
Elizabeth = John Jenkinson
(F 1689/90 by marriage, book binder)

VINER

John (Vynar) = Joan
(will proved 1494)
(of Bradford-on-Avon; will proved 1500)

Richard Vynor = Mary Selway
(of Stroud, clothier; fl 1630s-50s)
(of Easton; M 1636, D 1691)

Robert = Ann Fletcher
(of Stroud & Pitchcombe, clothier: B 1637, D 1718)
(of Painswick; M 1661/2, D 1721)

Elizabeth = John Blatchley
(B 1652, D 1723/4)
(of Bristol, joiner; D 1717)

others

George = Mary Ebsworth
(of Pitchcombe and Painswick, clothier; D 1733)
(of Painswick(?); M 1708/9, D 1753)

Brig. George A. Viner

John = Ann
(of Bristol, joiner; A to uncle John Blatchley (above) and after his death to John Blatchley jr and wife Anne; F 1733, will proved Bristol 1744)

others

John = ?
(of Bristol, joiner, fl 1730s)

Mary
(messuages of tenements in Baldwin St, Bristol)

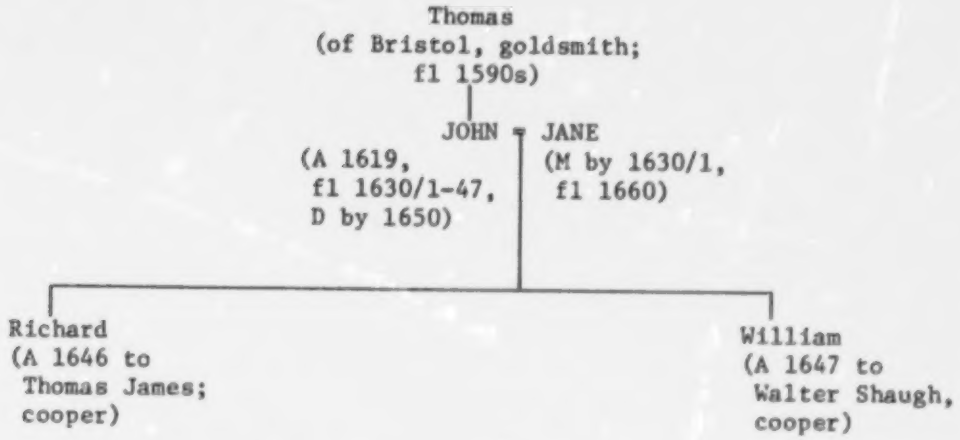
GEORGE = ANNA Watkins
of Bristol, pipemaker; B 1723/4, A 1740, F 1747, D ca.1775
(of Stroud; great-granddaughter of aunt of Ann Fletcher (above); B 1731, M 1750, D 1810)

Anna
(B 1753, D 1831; lived with brother Edmund Wick Viner at Wickstreet House)

Edmund Wick
(B 1757, D 1831; inherited Wickstreet House from mother)

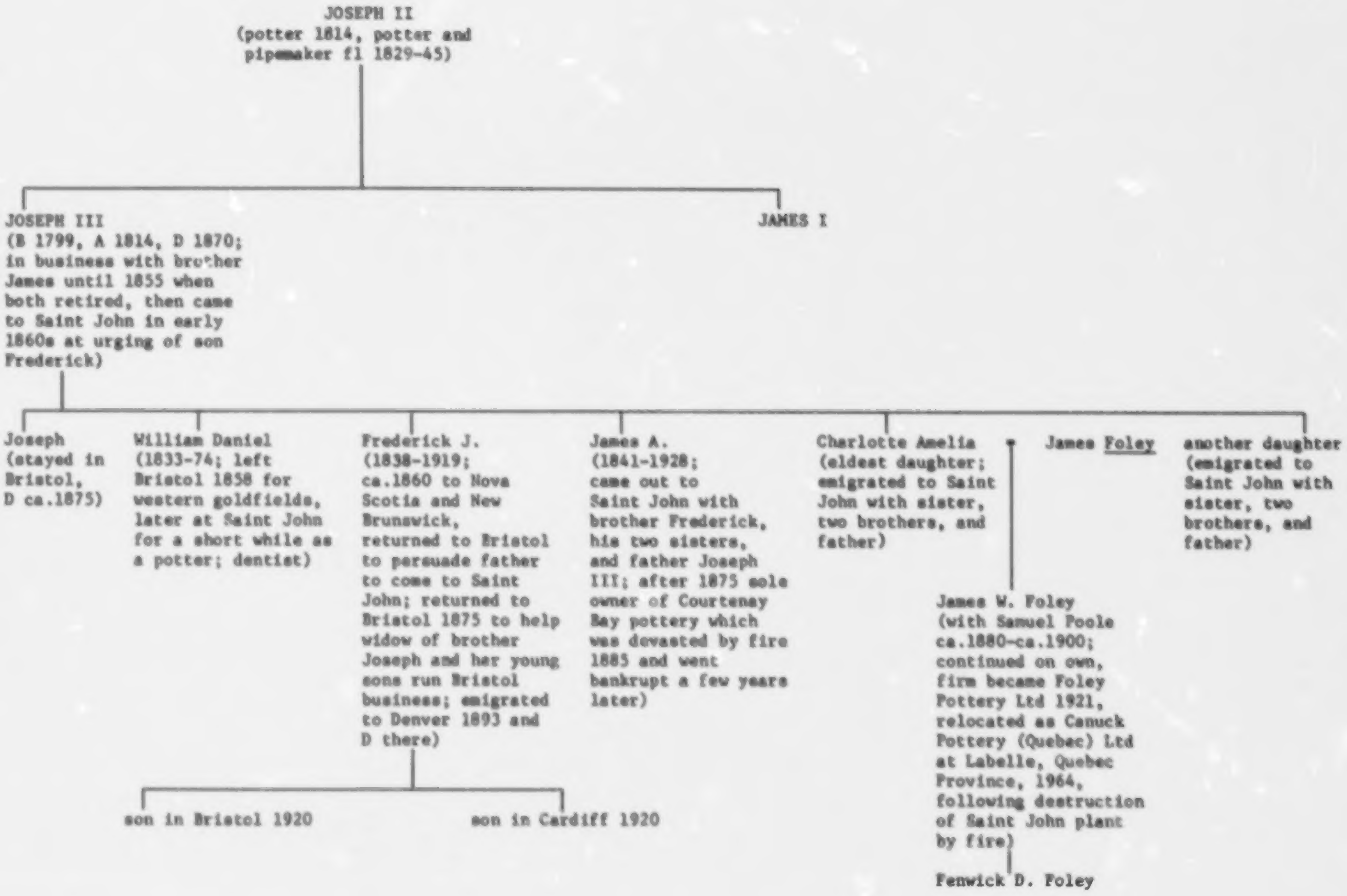
Thomas
(A 1776 to carver)

WALL



Thomas
(of Bristol, goldsmith;
fl 1590s)
JOHN = JANE
(A 1619,
fl 1630/1-47,
D by 1650)
(M by 1630/1,
fl 1660)
Richard
(A 1646 to
Thomas James;
cooper)
William
(A 1647 to
Walter Shaugh,
cooper)

WHITE



JOSEPH II
(potter 1814, potter and pipemaker fl 1829-45)

JOSEPH III
(B 1799, A 1814, D 1870; in business with brother James until 1855 when both retired, then came to Saint John in early 1860s at urging of son Frederick)

JAMES I

Joseph
(stayed in Bristol, D ca.1875)

William Daniel
(1833-74; left Bristol 1858 for western goldfields, later at Saint John for a short while as a potter; dentist)

Frederick J.
(1838-1919; ca.1860 to Nova Scotia and New Brunswick, returned to Bristol to persuade father to come to Saint John; returned to Bristol 1875 to help widow of brother Joseph and her young sons run Bristol business; emigrated to Denver 1893 and D there)

son in Bristol 1920

son in Cardiff 1920

James A.
(1841-1928; came out to Saint John with brother Frederick, his two sisters, and father Joseph III; after 1875 sole owner of Courtenay Bay pottery which was devasted by fire 1885 and went bankrupt a few years later)

Charlotte Amelia
(eldest daughter; emigrated to Saint John with sister, two brothers, and father)

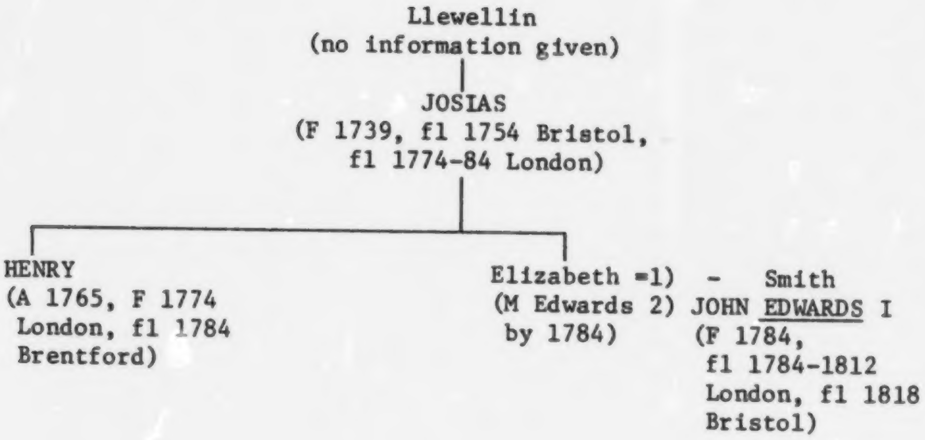
James Foley

James W. Foley
(with Samuel Poole ca.1880-ca.1900; continued on own, firm became Foley Pottery Ltd 1921, relocated as Canuck Pottery (Quebec) Ltd at Labelle, Quebec Province, 1964, following destruction of Saint John plant by fire)

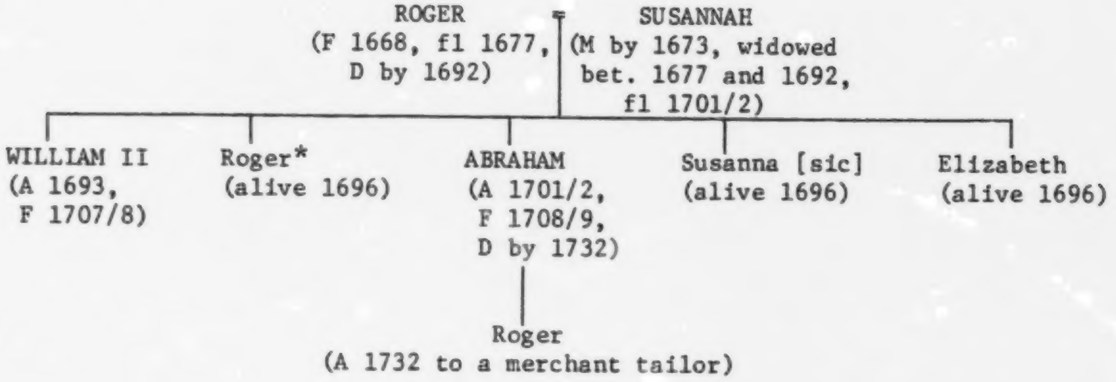
Fenwick D. Foley

another daughter
(emigrated to Saint John with sister, two brothers, and father)

WICKHAM


Llewellin
(no information given)
JOSIAS
(F 1739, fl 1754 Bristol,
fl 1774-84 London)
HENRY
(A 1765, F 1774
London, fl 1784
Brentford)
Elizabeth =1) - Smith
(M Edwards 2) JOHN EDWARDS I
by 1784)
(F 1784,
fl 1784-1812
London, fl 1818
Bristol)

WILLIAMS


ROGER
(F 1668, fl 1677,
D by 1692)
=
SUSANNAH
(M by 1673, widowed
bet. 1677 and 1692,
fl 1701/2)
WILLIAM II
(A 1693,
F 1707/8)
Roger*
(alive 1696)
ABRAHAM
(A 1701/2,
F 1708/9,
D by 1732)
Susanna [sic]
(alive 1696)
Elizabeth
(alive 1696)
Roger
(A 1732 to a merchant tailor)

---

*Son Roger noted A 1692 to a pewterer and presum. the same as the Roger A 1692/3 to a weaver and turned over 1695 to another weaver should be the Roger noted with widowed mother in 1696 list of Bristol inhabitants (Ralph and Williams (eds) 1968: 215; see also WILLIAMS, Susannah), though from other entries in 1696 list of inhabitants it appears apprentices were noted with their master not their parents. Possibly the twice-apprenticed, once-transferred Roger had given up his apprenticeship by 1696 and returned home.

JAMES ABBOTT (fl 1676/7-1715)

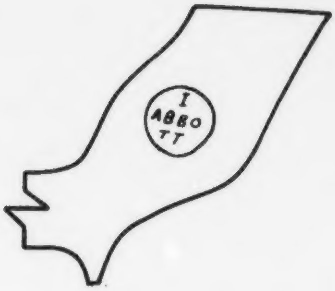
Marks mould-imparted and raised.

fig a: Oswald 1968; 6/64

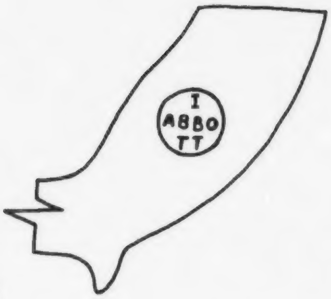
fig b: Bristol City Museum; 5/64

fig c: Bristol City Museum; 5/64

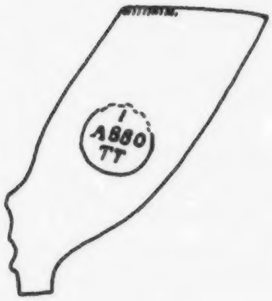
Note: All pipe drawings are at a scale of 1:1 unless otherwise noted.



a



b



c

EDWARD BATTLE (fl 1660-69)

No pipes definitely attributable to Edward Battle are known, but in view of the frequency with which EB-marked pipes are found in mid-C17 sites in eastern North America and the likelihood that some at least should be Battle's products (some are certainly Dutch) the five illustrations here indicate the variety of EB-marked material found by this writer while examining museum material in SW England and South Wales. Fig a has a bowl of Bristol form and is perhaps the most likely of the five to be a Battle product, but figs b and c are both from Bristol collections and are almost certainly local finds. Fig d is of a form which could certainly have been used by Battle, but as it is a Marlborough find and there is an Ed Beasten working there at least ca.1700 (Atkinson 1965c: 92, 91 fig 2, 78, rev ed 1969b) it is perhaps more probable this product is his, though Beasten pipes are known at present only from marked stems and the bowl illustrated here is certainly ca.1650 rather than ca.1700. Fig e is from Warwick County Museum and is presumably much more likely to be a product of Edward Biggs of Henley-in-Arden fl 1653 (Oswald 1960a: 57) than a product of Battle. Marks in figs a and e raised from a depressed background; marks in figs b-d impressed.

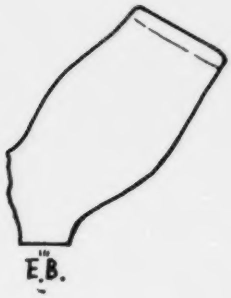
fig a: Abergavenny; 7/64

fig b: Bristol City Museum; 8/64

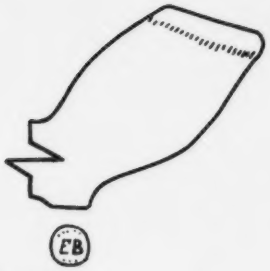
fig c: Blaise Castle Folk Museum, Bristol; 8/64

fig d: Macdonald 1941; bore diameter unknown

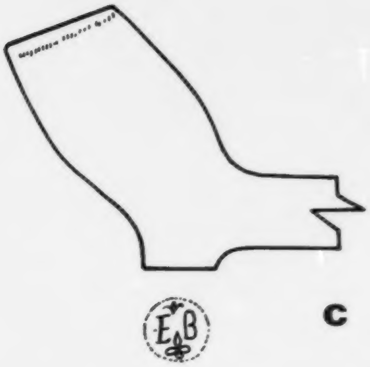
fig e: Warwick; 7/64



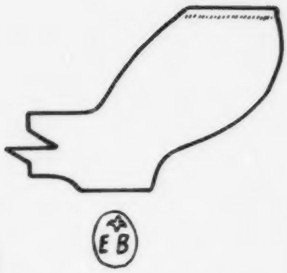
a



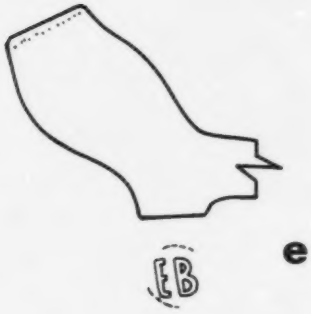
b



c



d



e

RICHARD BERRYMAN (fl 1619-52)

Notice differences in the symbol between the letters. In some examples there is no doubt as to its being a daggar above a heart; in the clearest impressions (e.g. figs a and c here - the latter a particularly fine specimen, left in outline in this drawing so as to show the detail on the daggar handle) the tapering blade and the pommels on the handle and cross-pieces are clearly visible. In other cases the object has a spoon-shaped ending with or without the heart below. Neither of two stories, one that the symbol represents Berryman being stabbed to the heart by his name being removed from the list of Bristol Build members (so label at Wills's Museum), the other that it is a shovel representing a rebus on the name Berryman - "bury man" - (so Chalkley 1956: 4), seems probable; Berryman (albeit with his first name left blank) is listed among the guild founder-members (see Appendix VI) in 1652, and the spoon-shaped addition hardly makes the object into a practical shovel. Some examples have a stroke-burnished finish. Marks impressed.

fig a: Bristol City Museum; 7/64

fig b: Pritchard Collection, British Museum; 7/64

fig c: National Museum of Wales, Cardiff; 9/64

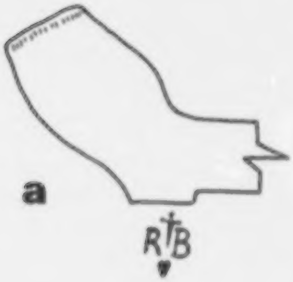
fig d: Bristol City Museum; 8/64

fig e: Pritchard Collection, British Museum; 8/64

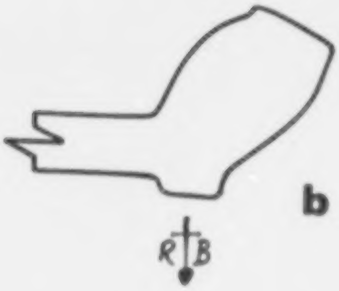
fig f: Bristol City Museum; 8/64

fig g: Bristol City Museum; 6/64

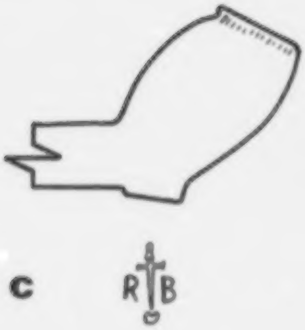
fig h: Bristol City Museum; 7/64



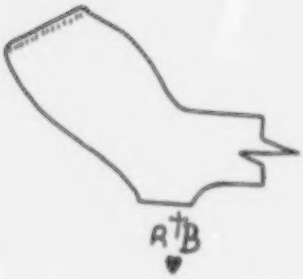
a



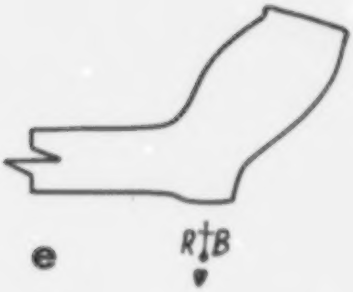
b



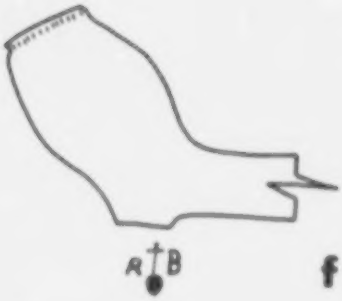
c



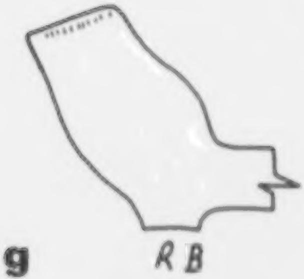
d



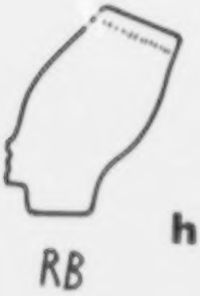
e



f



g



h

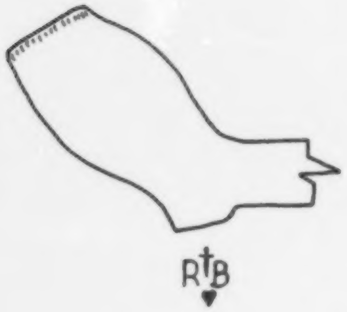
RICHARD BERRYMAN (fl 1619-52)

(continued)

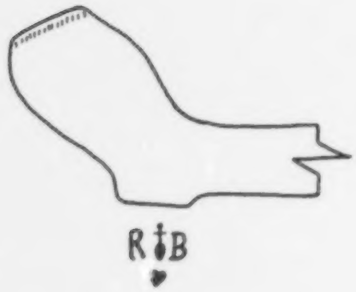
fig _i_: Bristol City Museum; 8/64

fig _j_: Bristol City Museum; 7/64

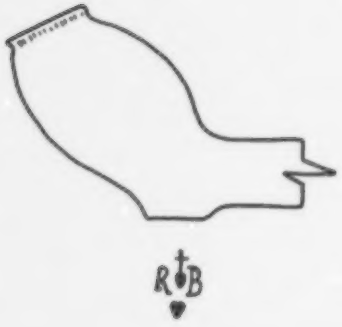
fig _k_: Bristol City Museum; 8/64



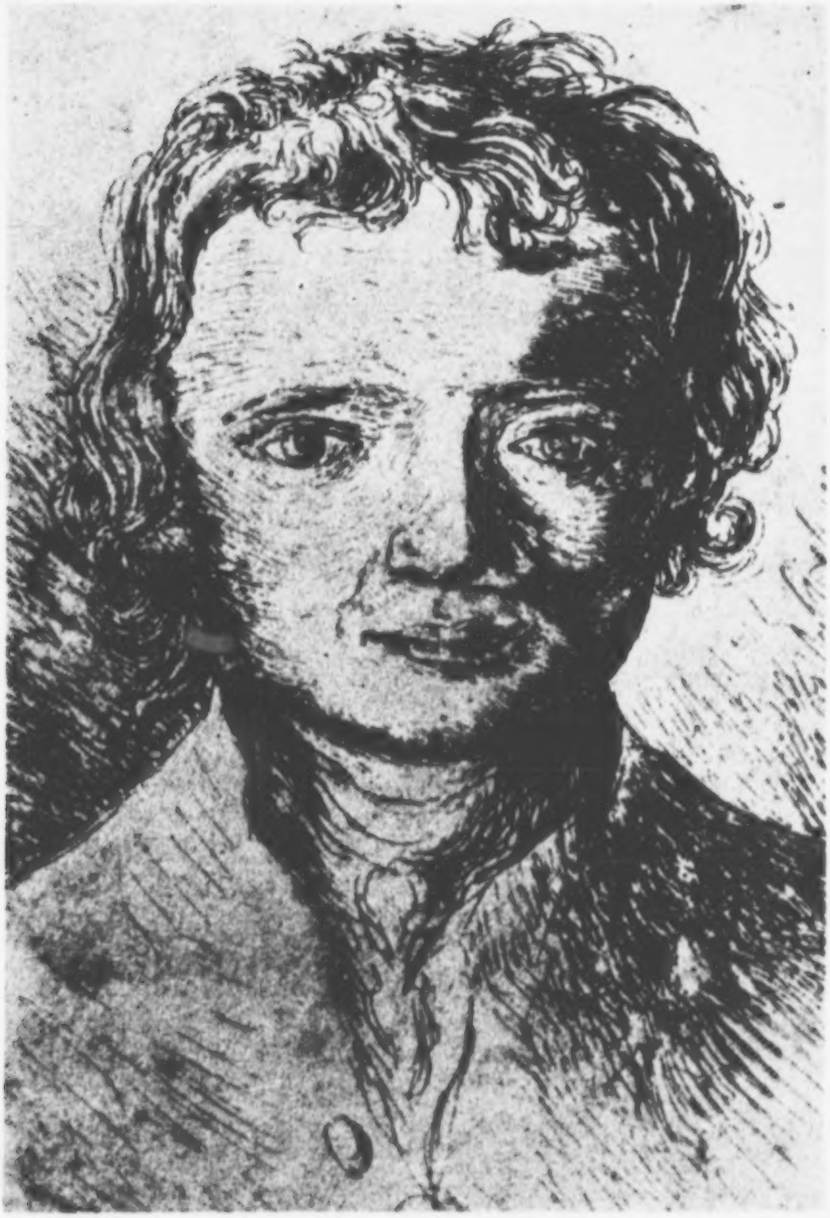
i



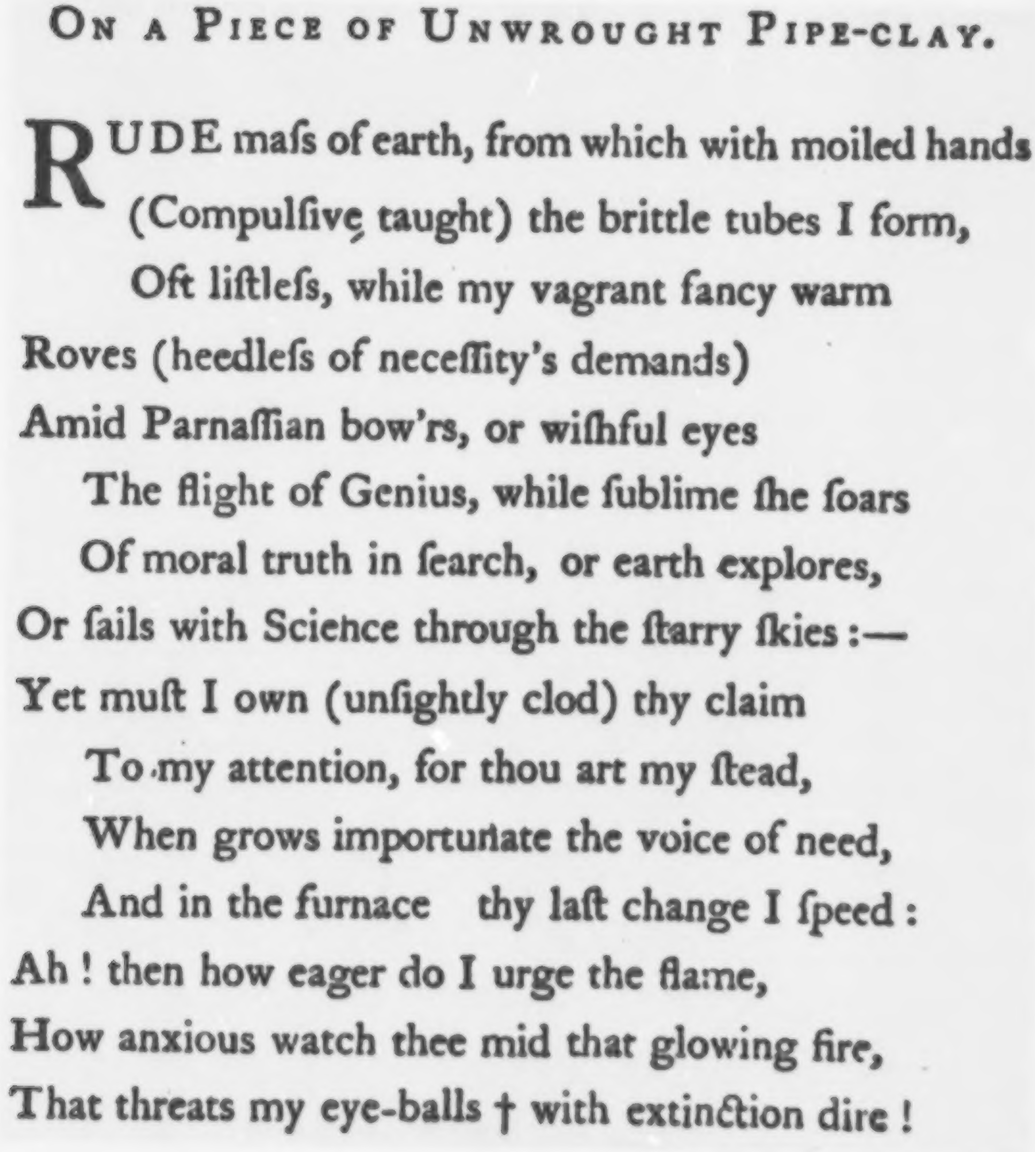
j



k



JOHN FREDERICK BRYANT III



ON A PIECE OF UNWROUGHT PIPE-CLAY.

RUDE maſs of earth, from which with moiled hands
(Compulſive, taught) the brittle tubes I form,
Oft liſtleſs, while my vagrant fancy warm
Roves (heedleſs of neceſſity's demands)
Amid Parnaſſian bow'rs, or wiſhful eyes
The flight of Genius, while ſublime ſhe ſoars
Of moral truth in ſearch, or earth explores,
Or ſails with Science through the ſtarry ſkies :—
Yet muſt I own (unſightly clod) thy claim
To my attention, for thou art my ſtead,
When grows importunate the voice of need,
And in the furnace thy laſt change I ſpeed :
Ah ! then how eager do I urge the flame,
How anxious watch thee mid that glowing fire,
That threats my eye-balls † with extinction dire !

JOHN FREDERICK BRYANT III

"On A Piece of Unwrought Pipe-Clay"

CHARLES CHICK (fl 1697-1707, poss. fl 1722)

Mark mould-imparted, raised.

fig a: Oswald 1968; 6/64

a

GEORGE EBBERY (fl 1721-81)

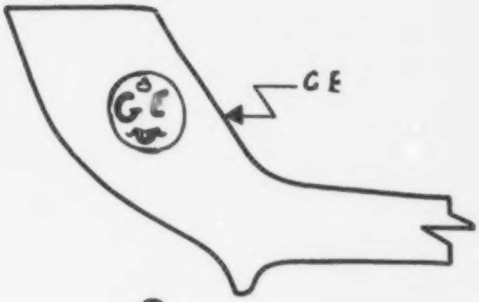
Cartouches mould-imparted and raised; letters on bowl facing smoker impressed; stem marking raised from a depressed background and probably impressed with a rocker stamp. Note that fig a has its cartouche on the left side of the bowl as the pipe is held by the smoker - this is very rare, the right side being almost invariably the side used.

fig a: Oswald in litt. 28 May 1969; bore diameter unknown

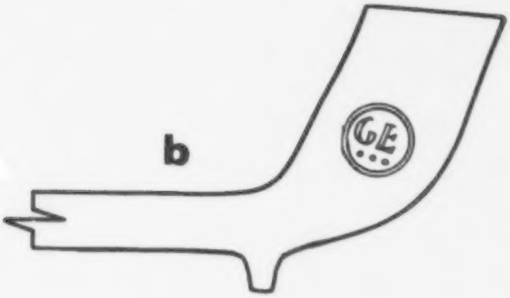
fig b: Bristol City Museum; 5/64

fig c: Bristol City Museum; 4/64

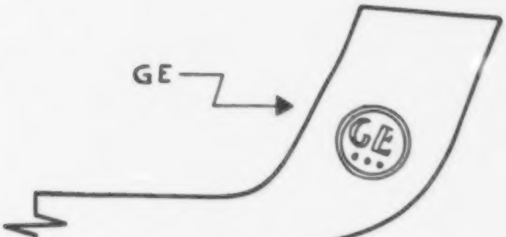
fig d: Bristol City Museum; 5/64



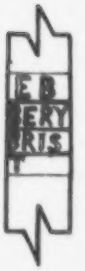
a



b



c



d

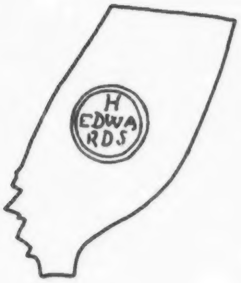
HENRY EDWARDS (fl 1699-1727)

The combination of marks in fig c presumably indicate a partnership between Edward Reed (or less likely Edward Randall jr) and Henry Edwards - a variety of similar double marks are known from Bristol at this period (see Vol I pp1012-14). The cartouche mark illustrated in fig c is also known on pipes of various varieties of type 9 bowl shape without the accompanying impressed ER; the bowls with this cartouche from Port Royal are invariably illustrated with the surname running in the fashion shown in fig c, not with it running "upside-down" as in fig b. In fig c the cartouche is mould-imparted and raised, and the letters facing the smoker impressed; in figs a and b the marks are mould-imparted and raised.

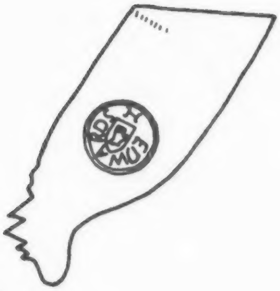
fig a: Bristol City Museum; 5/64

fig b: Bristol City Museum; 6/64

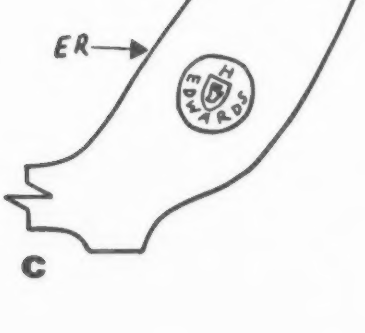
fig c: Oswald 1968; 5/64



a



b


ER
H
EDWARDS

c

PHILIP EDWARDS I (fl 1649/50-68/9) and
PHILIP EDWARDS II (fl 1680/1-96)

Figs a-h may be regarded as products of Philip Edwards I; depending on how much longer he continued working after 1668/9 (he is known to have been dead by 1683) he could also have produced some or all of figs i-m, though some, particularly fig m, may be products of his son Philip II. Typologically figs g and h are appreciably earlier than either 1680/1, the freedom date of Philip II, or 1683, the freedom date of Francis Edwards, Philip II's younger brother, and can be attributed to Edward I as he is the only Edwards pipemaker working in the mid-C17. Marks impressed.

fig a: Wills's Museum, Bristol; 7/64

fig b: Pritchard Collection, British Museum; 7/64

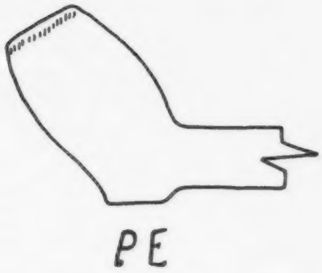
fig c: Wills's Museum, Bristol; 7/64

fig d: Pritchard Collection, British Museum; 7/64

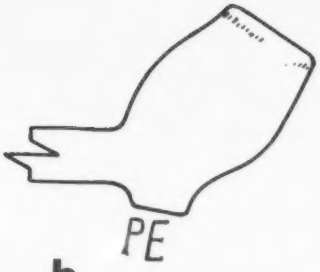
fig e: Pritchard Collection, British Museum; 7/64

fig f: Pritchard Collection, British Museum; 7/64

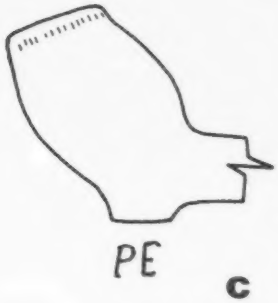
fig g: Pritchard Collection, British Museum; 8/64



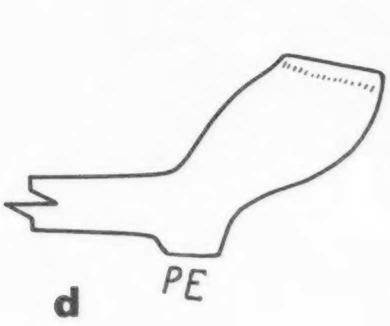
a



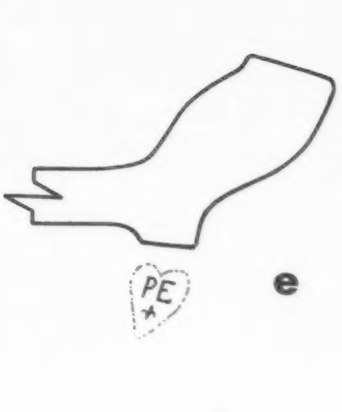
b



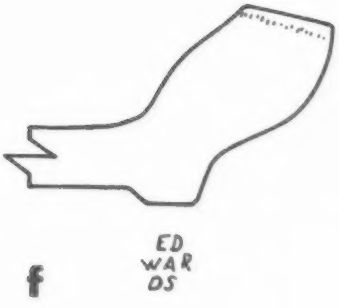
c



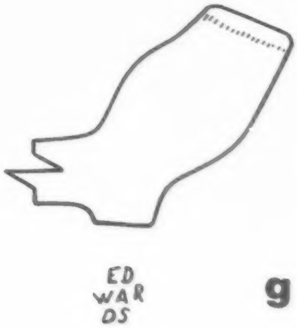
d



e



f



g

PHILIP EDWARDS I (fl 1649/50-68/9) and PHILIP EDWARDS II (fl 1680/1-96)

(continued)

fig h: Wills's Museum, Bristol; 8/64

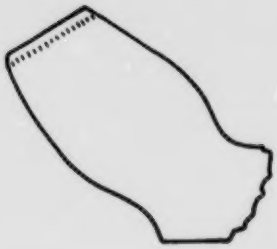
fig i: Bristol City Museum; 7/64

fig j: Bristol City Museum; 7/64

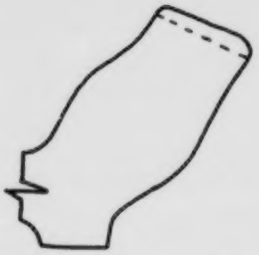
fig k: Wills's Museum, Bristol; 7/64

fig l: Blaise Castle Folk Museum, Bristol; 7/64

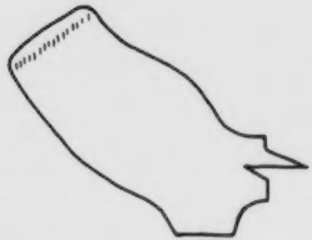
fig m: Bristol City Museum; 8/64



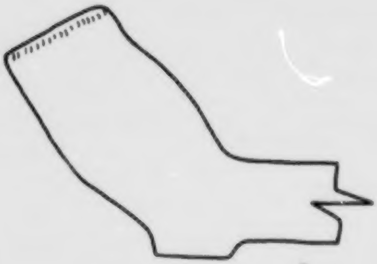
h



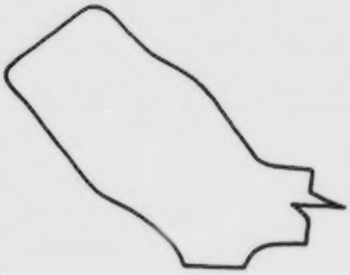
i



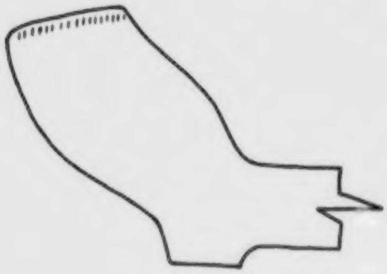
j



k



l



m

---- EDWARDS

Although the fragmentary nature of this bowl and its less than accurate drawing in the Port Royal report vol I make it difficult to date this specimen, what can be deduced from the general form of the pipe and from its maker's mark suggests it is Bristol made and dates to the later C18. The lack of a first name or initial either through its not being part of the mark or because the cartouche here has had its top broken off precludes positive identification, but possible makers are:

Jonas Edwards II (fl 1747-84, still in Bristol 1754 but in London by 1774);

John Edwards I (fl 1747 - brother of Jonas II);

Joseph Edwards I (fl 1747-92 - brother of Jonas I and John);

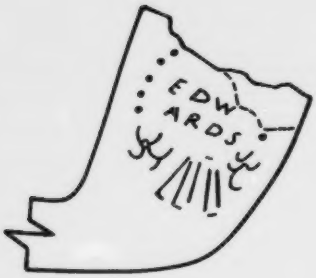
Joseph Edwards II (fl 1774-1823 - son of Joseph I);

John Edwards II (fl 1784-1812, but working apparently throughout this period in London - not known to be related to the preceding four).

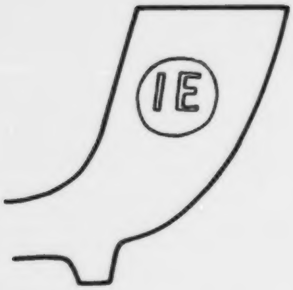
The marks are mould-imparted and raised.

fig a: Oswald 1968; 5/64 (scale apparently somewhat larger than 1:1)

fig b: Bristol City Museum; bore diameter unknown



a



b

ISAAC EVANS (fl 1698-1700/1)

On the basis of bowl forms Isaac Evans must have been active into the earlier C18 and beyond his last recorded date of 1700/1. The double markings shown in figs c and e indicate that Evans must at one time, perhaps early in his career, have been in some sort of partnership with Robert Tippet II; examples are also known of pipes with the anchor and shield Evans cartouche having ER impressed facing the smoker, suggesting a similar association with Edward Reed (or less likely, Edward Randall jr). Bowls are also known with EVA/NS in the cartouche but with no star noted, with and without the RT facing the smoker. Cartouches are mould-imparted and raised, marks facing smoker in figs c and e are impressed.

fig a: Bristol City Museum; bore diameter unknown

fig b: Bristol City Museum, bore diameter unknown

fig c: Bristol City Museum; 5/64

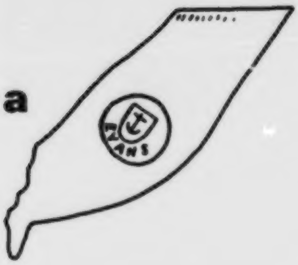
fig d: Cheltenham; 6/64

fig e: Bristol City Museum; 6/64

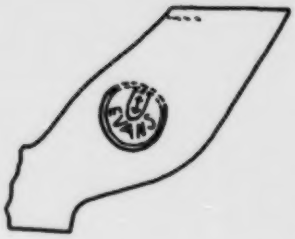
fig f: Bristol City Museum; 6/64

fig g: Bristol City Museum; 6/64

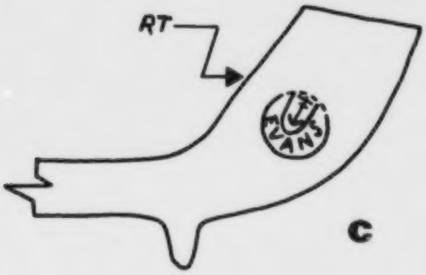
fig h: Oswald 1968; 6/64



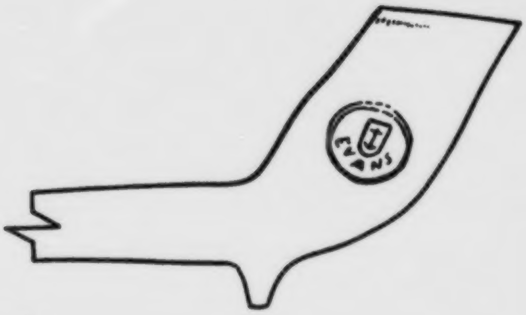
a



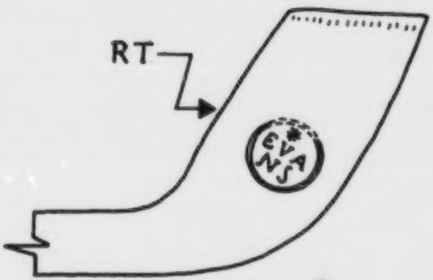
b



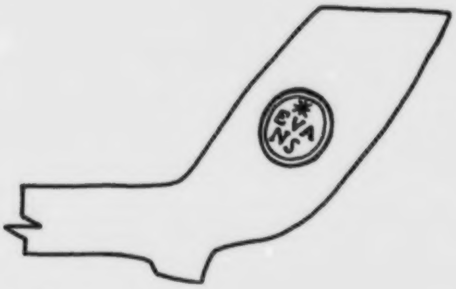
c



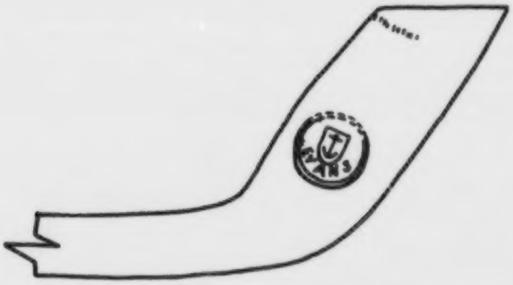
d



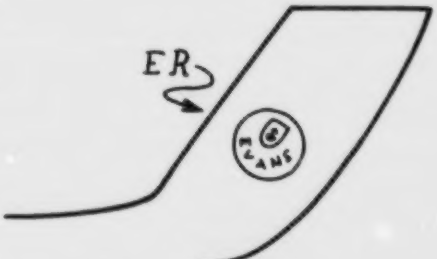
e



f



g



h

LLEWELLIN EVANS (fl 1661-86)

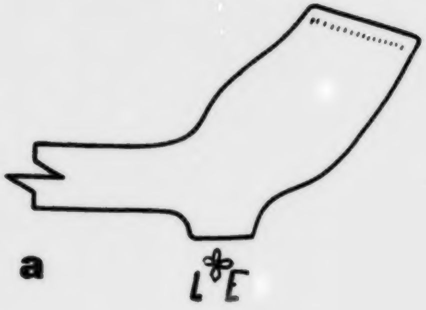
Probably a brother of one of the William Evanses (qq.v.); figs _d_ and _e_ here are of a characteristic shape apparently confined to Llewellin Evans and one of the William Evanses (see their fig _b_). All marks impressed.

fig _a_: Pritchard Collection, British Museum; 7/64

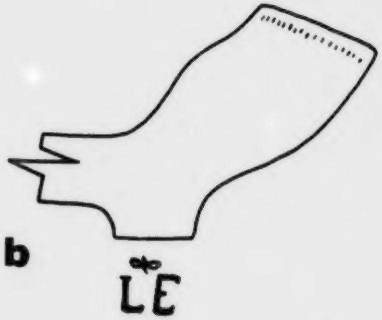
fig _b_: Bristol City Museum; 8/64

fig _c_: Pritchard Collection, British Museum; 7/64

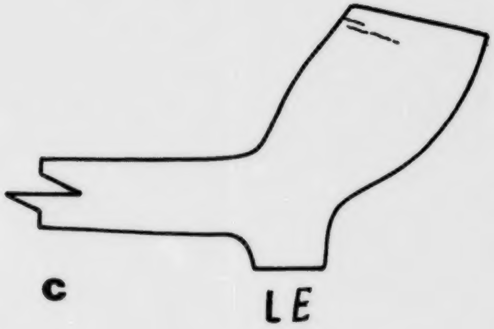
fig _d_: Blaise Castle Folk Museum, Bristol; 8/64



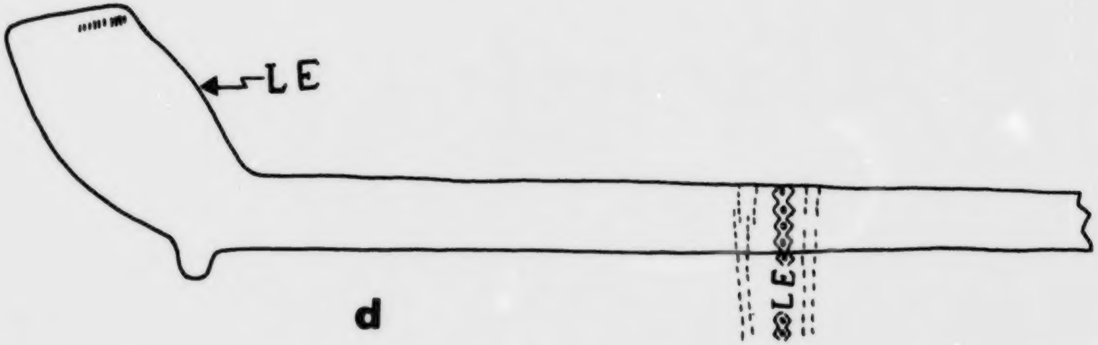
a



b



c



d

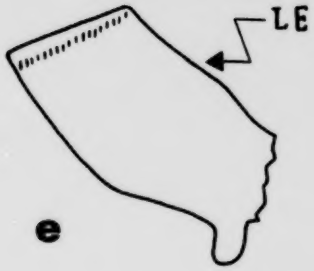
LLEWELLIN EVANS (fl 1661-86)

(continued)

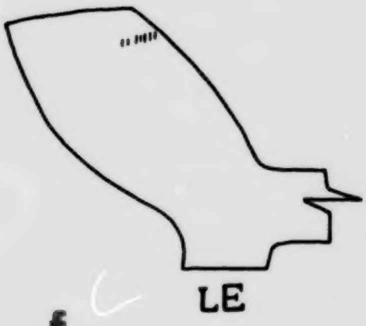
fig _e_: Wills's Museum, Bristol; 7/64

fig _f_: Bristol City Museum; 7/64

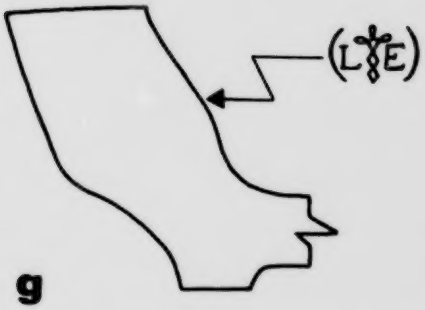
fig _g_: Oswald 1968; 7/64



e



f



g

WILLIAM EVANS I (fl 1660-82) and WILLIAM EVANS II (fl 1667-82, one or other fl 1697)

It is not possible to separate the products of the two William Evanses, but the shapes depicted in figs b and c-d seem characteristic of at least one of them and that illustrated in fig b was also used by Llewellin Evans (q.v., his figs d and e) who was probably a brother of one of the William Evanses. Both bowl-forms noted here seem restricted to these Evanses and probably date to the 1670s. All marks impressed.

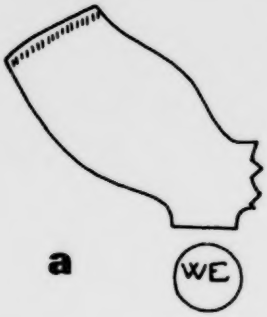
fig a: Blaise Castle Folk Museum, Bristol; 7/64

fig b: Wills's Museum, Bristol; 8/64

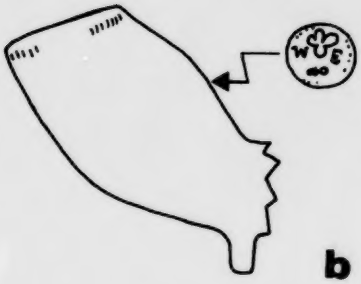
fig c: Blaise Castle Folk Museum, Bristol; 8/64

fig d: Oswald 1968; 7/64

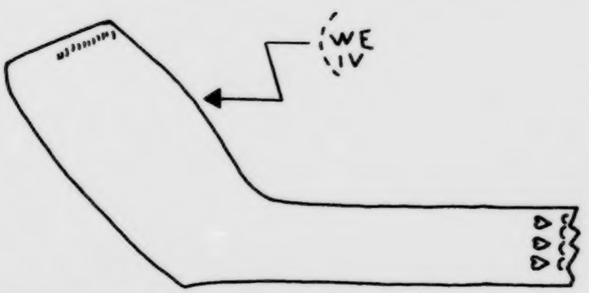
fig e: Pritchard Collection, British Museum; 8/64



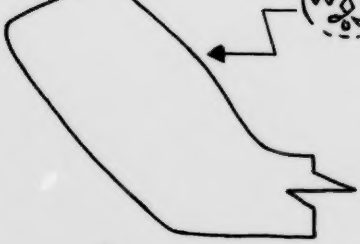
a



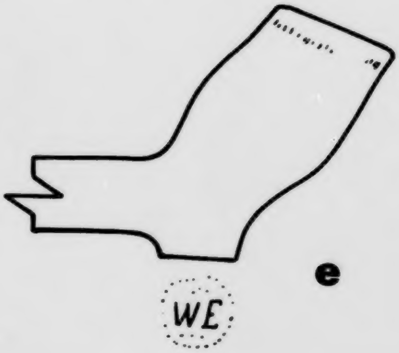
b



c



d



e

WILLIAM EVANS I (fl 1660-82) and WILLIAM EVANS II (fl 1667-82, one or other fl 1697)

(continued)

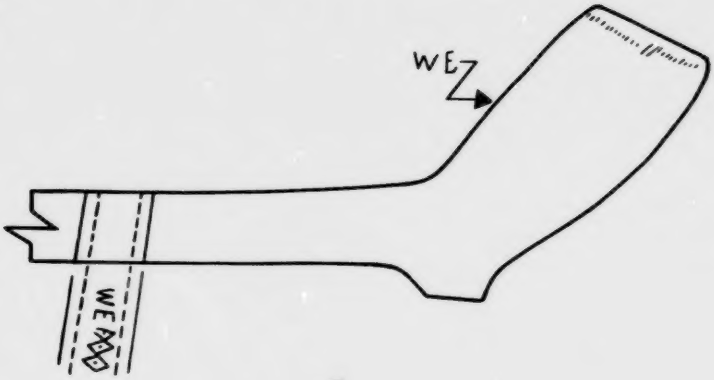
fig _f_: Pritchard Collection,
British Museum; 8/64

fig _g_: Bristol City Museum; 8/64

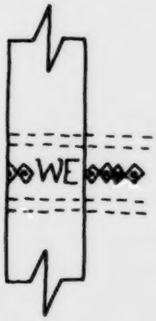
fig _h_: from description in Omwake 1946; bore diameter unknown

fig _i_: Alexander _in_ _litt_. 23 October 1974; 7/64

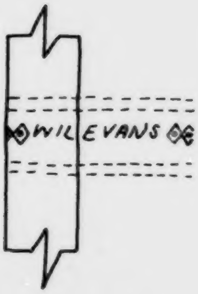
fig _j_: Alexander _in_ _litt_. 23 October 1974; 8/64



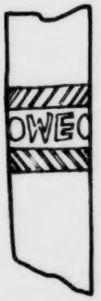
f



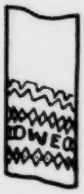
g



h



i



j

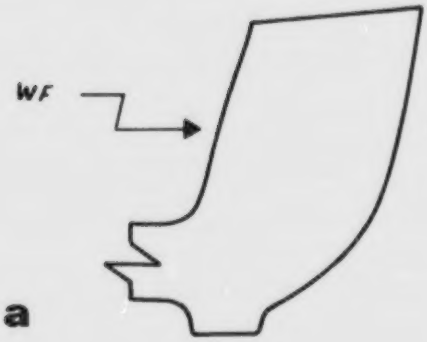
WILLIAM FOORD (fl 1733-54, in London by 1754 and poss. by 1748)

These and other bowls probably attributable to William Foord came from the area of the Bristol Bus Station site, but were not actually associated with the Robert Tippet family pipekiln there. Cartouches mould-imparted and raised; letters facing smoker impressed.

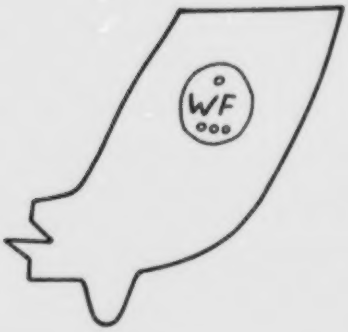
fig _a_: Omwake-Marochan correspondence; bore diameter not known

fig _b_: Omwake-Marochan correspondence; bore diameter not known

fig _c_: Omwake-Marochan correspondence; bore diameter not known

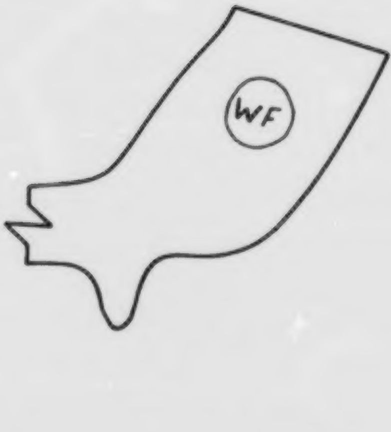


a



b

c

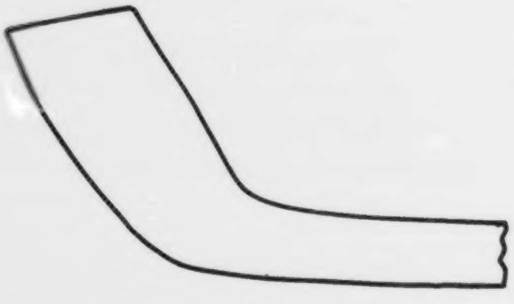


JAMES FOX (fl 1651-69, poss. fl 1696)

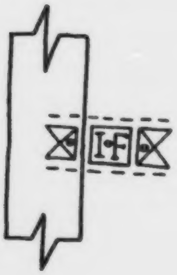
No definite examples of Fox pipes or of this mark known from any of the Bristol collections but identification of this mark with John Fox seems probable (see vol I pp908-9). The pipe in fig a has this mark just at the break in its stem, but the mark is reproduced separately in fig b from whole examples. Mark impressed.

fig a: Atkinson in litt. 20 May 1972; bore diameter unknown

fig b: adapted from Cross 1941, Kelso 1966, and Kelso 1967; bore diameter unknown



a



b

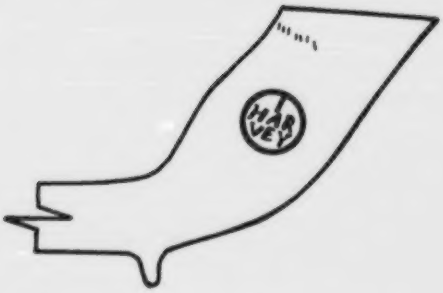
JOHN HARVEY I (fl 1705/6-39) and JOHN HARVEY II
(fl 1725/6-39, by which latter date one of these
makers, probably John II, was in London)

Marks mould-imparted and raised

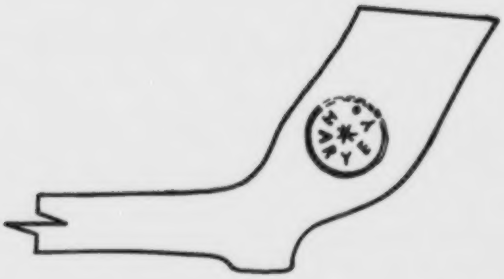
fig _a_: Bristol City Museum; 5/64

fig _b_: Bristol City Museum; 5/64

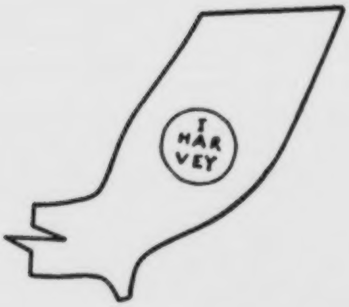
fig _c_: Bristol City Museum; 5/64



a



b

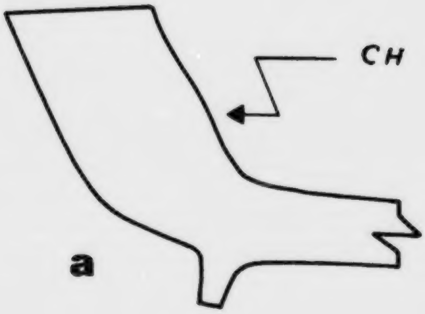


c

CHARLES HICKES (fl 1721/2-40)

Mark mould-imparted, raised.

fig a: Gloucester; 5/64

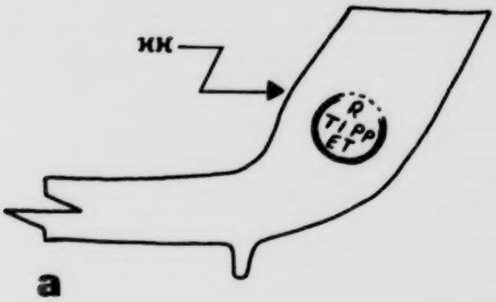

CH
a

HENRY HOAR (fl 1696-1723)

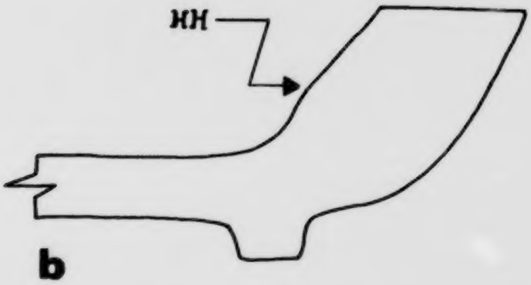
Henry Hoar was an apprentice of Robert Tippet II and the combination of marks shown in fig a suggests the two must have been in partnership at one time - there are a number of double markings on Bristol pipes of this period, suggesting sub-contracting or some similar arrangement among independent makers. An example of a heeled type 9 pipe with a Robert Tippet cartouche comprising that name "upside-down" round the circle as in Robert Tippet fig p but with a shield in the centre probably like that on Henry Edwards fig b (cf Robert Tippet fig h), and the letters HH facing the smoker is also known. Mark in fig b impressed; letters facing smoker in fig a impressed and the cartouche mould-imparted and raised.

fig a: Bristol City Museum; 6/64

fig b: Bristol City Museum; 5/64



a



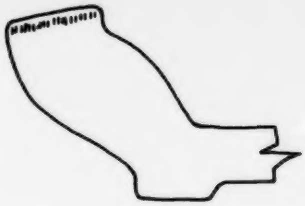
b

FLOWER HUNT (fl 1651-70)

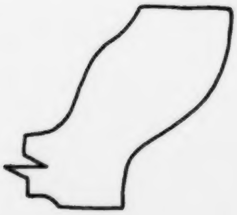
Flower Hunt pipes, like those of John Hunt (q.v.), are generally of high quality and are stroke-burnished. Marks impressed.

fig _a_: Bristol City Museum; 6/64

fig _b_: Bristol City Museum; 6/64


FLO
WER H
VNT

a


FLO
WERH
VNT

b

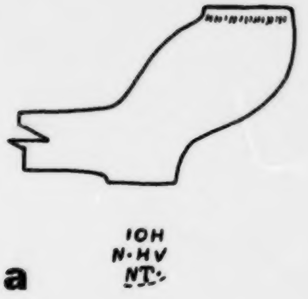
JOHN HUNT I (fl 1651-53)

John Hunt I pipes, like the very similar pipes of Flower Hunt (q.v.) are generally excellently made, with a stroke-burnished finish. Marks impressed.

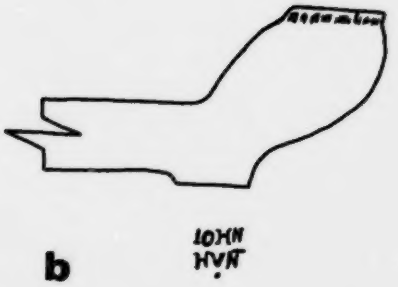
fig _a_: Bristol City Museum; 6/64

fig _b_: Bristol City Museum; 9/64

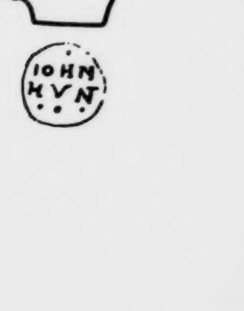
fig _c_: Abergavenny; 7/64



a



b



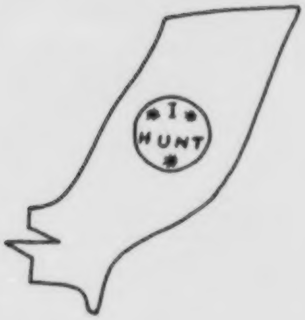
c

JOHN HUNT II (fl 1698) and JOHN HUNT III (fl 1694 - one of them fl 1716/7)

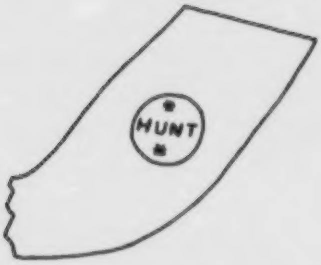
Marks mould-imparted and raised.

fig a: Oswald 1968; 5/64

fig b: Oswald 1968; 7/64



a



b

JAMES JENKINS (fl 1707-39) or JOHN JENKINS (fl 1739)

The use of only an initial for the first name prevents a definite attribution for these pipes, but typologically they are more likely to belong to James Jenkins than to his son John (Joseph Jenkins fl 1768-84 is too late). Cartouches are mould-imparted and raised; the mark facing the smoker in fig d is impressed.

fig a: Bristol City Museum; bore diameter unknown

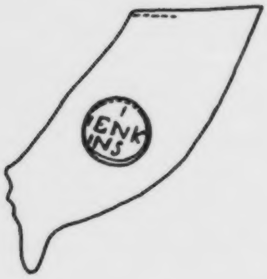
fig b: Bristol City Museum; 5/64

fig c: Cheltenham; 5/64

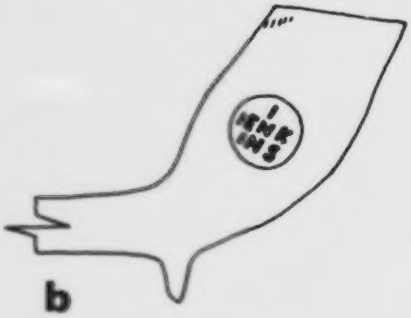
fig d: Fry's Museum, Keynsham; 6/64

fig e: Hermessen 1926; bore diameter unknown

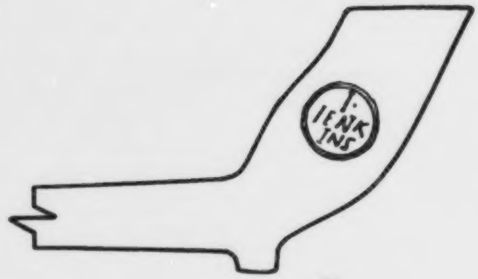
Scale of fig e unknown, but probably ca.2:3



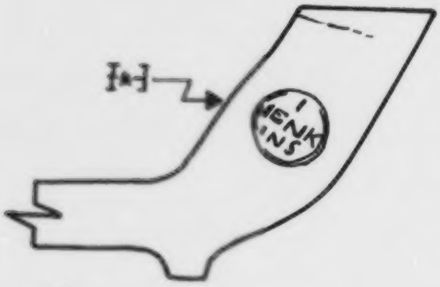
a



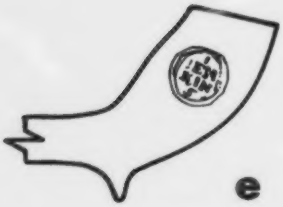
b



c



d



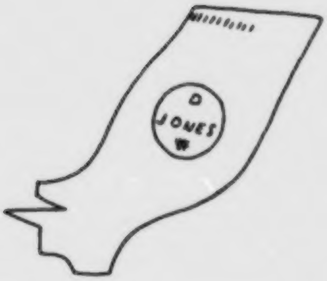
e

DEVEREAUX JONES I (fl 1691-1713) and
DEVEREAUX JONES II (fl 1727-39)

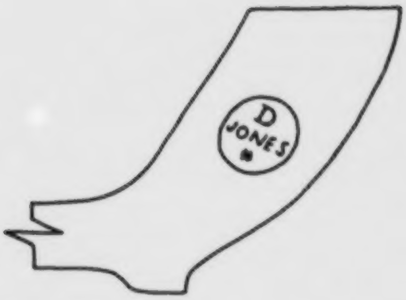
Typologically fig a is likely to be a product of the elder Devereaux Jones; fig b might typologically belong to either. A heelless bowl with the same mark as here is also known. A variant of the cartouche with dots on either side of the D and a more elaborate, floral-like motif in place of the star is recorded on a bowl more probably produced by Devereaux jr. Marks mould-imparted and raised.

fig a: Oswald 1968; 5/64

fig b: Oswald 1968; 5/64



a



b

EDWARD LEWIS I (fl 1631-40/1), ELIZABETH LEWIS (fl 1652), and EDWARD LEWIS II (fl 1678/9, fl 1722)

Typologically figs a-m fit the 1630s-1650s covered by Edward Lewis I and Elizabeth (either his mother Elizabeth, widow of Samuel I, or more likely his widow Elizabeth), but unless Elizabeth continued pipemaking much longer than we have evidence for, figs n and o are probably products of Edward Lewis II, who was a grandson of Edward and Elizabeth. Fig p is undoubtedly a product of Edward Lewis II. Marks impressed, with the exception of fig p which is mould-imparted and raised.

fig a: Bristol City Museum; 7/64

fig b: Blaise Castle Folk Museum, Bristol; 5/64

fig c: Blaise Castle Folk Museum, Bristol; 7/64

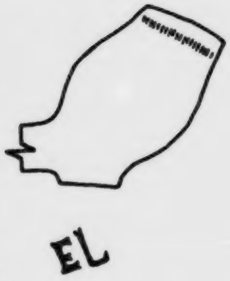
fig d: Worcester; 8/64

fig e: Stroud; 7/64

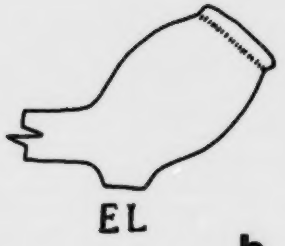
fig f: Bristol City Museum; 7/64

fig g: Wills's Museum, Bristol 8/64

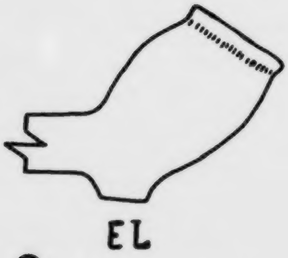
fig h: Bristol City Museum; 5/64



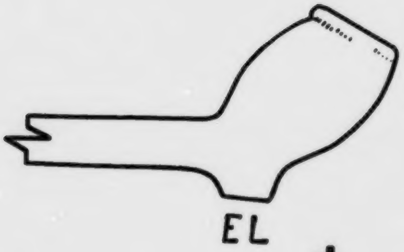
a



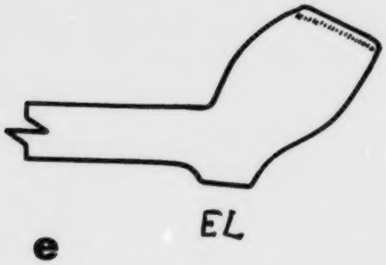
b



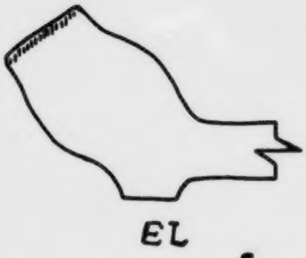
c



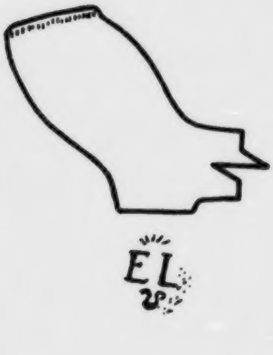
d



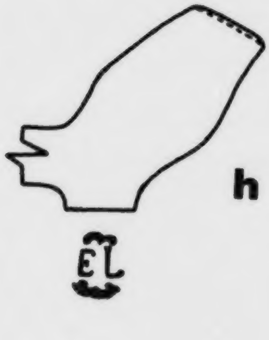
e



f



g



h

EDWARD LEWIS I (fl 1631-40/1), ELIZABETH LEWIS (fl 1652), and EDWARD LEWIS II (fl 1678/9, fl 1722)

(continued)

fig i: Abergavenny; 7/64

fig j: Abergavenny; 7/64

fig k: Pritchard Collection British Museum; 7/64

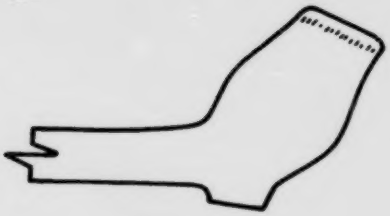
fig l: Wills's Museum, Bristol; 7/64

fig m: Blaise Castle Folk Museum, Bristol; 7/64

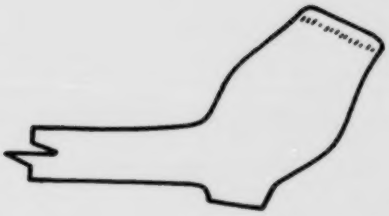
fig n: Blaise Castle Folk Museum, Bristol; 7/64

fig o: Pritchard Collection British Museum; 8/64

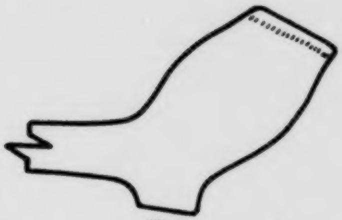
fig p: Bristol City Museum; bore diameter unknown



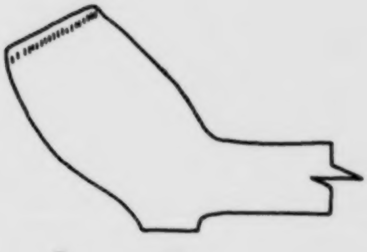
i



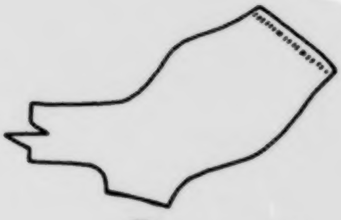
j



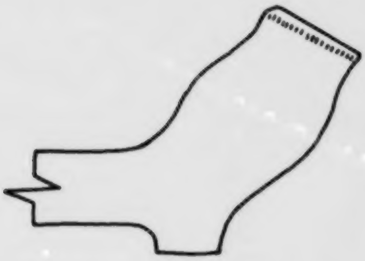
k



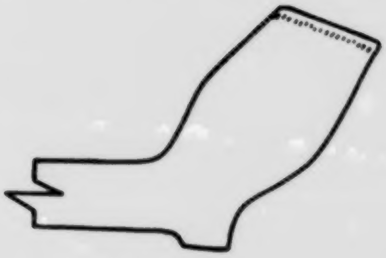
l



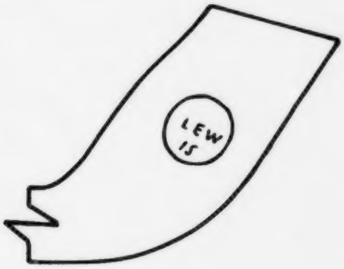
m



n



o



a

---- LEWIS

The lack of first name or initial here makes positive identification of this pipe impossible, and the large number of Lewis pipe makers in Bristol makes the giving even of possible manufacturers difficult. On the basis of bowl form, however, the maker must have been active at the end of the C17 or in the earlier C18. The following Bristol Lewises are the most likely makers:

John Lewis I (fl 1669-90);

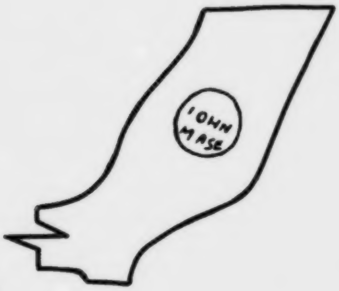
Edward Lewis II (fl 1678/9-1722);

Francis Lewis (fl 1691-1722) - son of John I;

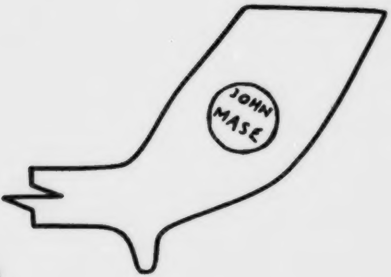
Susannah Lewis (fl 1696-1707) - widow of John I and mother of Francis.

Mark is mould-imparted and raised. For a very similar bowl definitely attributable to Edward Lewis II see fig *p* under the Edward Lewis I/ Elizabeth Lewis/Edward Lewis II entry above.

fig *a*: Oswald 1968; 6/64



a



b

JOHN MACEY I (fl 1700-26) and JOHN MACEY II
(fl 1723 - one of them fl 1729)

Fig a is typologically probably a product of John Macey I; fig b could belong to either John I or his son John II. Marks mould-imparted and raised.

fig a: Oswald 1968; 5/64

fig b: Cheltenham; bore diameter unknown

THOMAS MONKES (fl 1656-69/70)

Figs c-e are characteristic of Bristol pipes of the 1660s-1670; figs a and b suggest Monkes may have been working by the early 1650s while figs f and g if in fact Monkes's products suggest he was still working well towards the end of the C17 (no freedom date or date of death is known for Monkes). Figs f and g, however, may be the products of the T. Morgan (q.v.) whose pipe is illustrated under Thomas Morgan, though there are some reservations about equating that maker with that product. Marks impressed except for fig f, which is mould-imparted and raised.

fig a: Pritchard Collection, British Museum; 6/64

fig b: Pritchard Collection, British Museum; 7/64

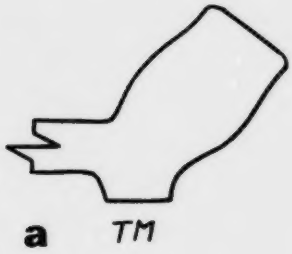
fig c: Blaise Castle Folk Museum, Bristol; 7/64

fig d: Bristol City Museum; 7/64

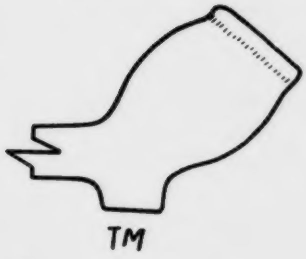
fig e: Blaise Castle Folk Museum, Bristol; 7/64

fig f: Bristol City Museum; 5/64

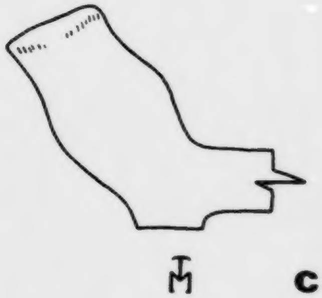
fig g: Wills's Museum, Bristol; 5/64



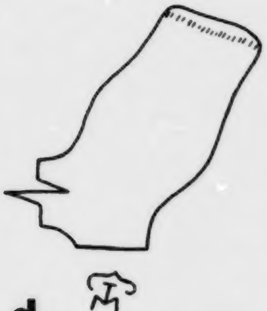
a



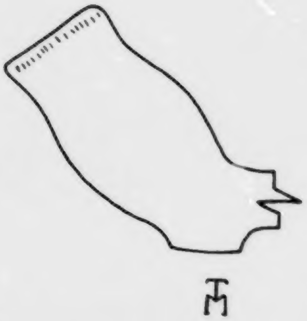
b



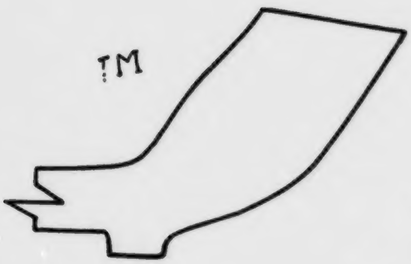
c



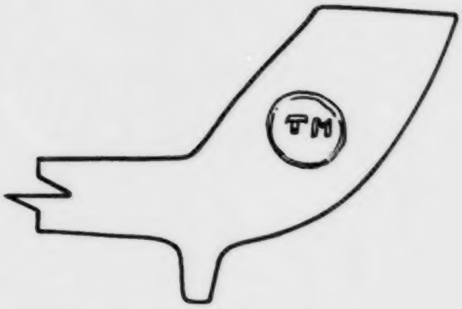
d



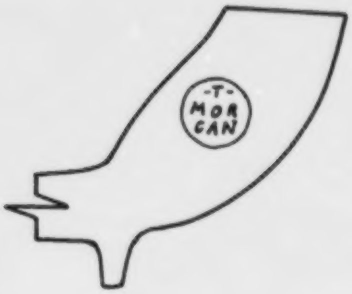
e



f



g

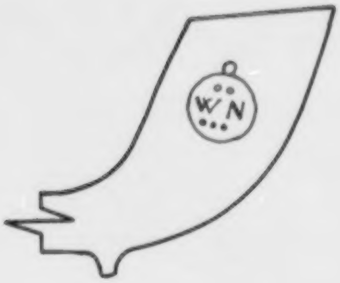


a

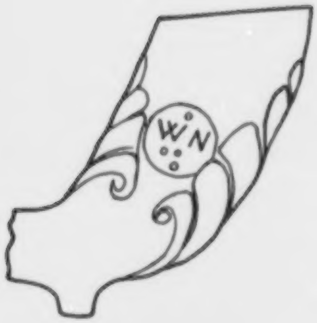
THOMAS MORGAN (A 1726/7, alive 1729, not known to have ever become free)

The attribution of this pipe to this Thomas Morgan must be regarded as doubtful, for there appears to be no evidence that he finished his apprenticeship or was ever in business. There are, however, no other Morgan Bristol pipemakers with the initial T, the form of mark is typically Bristol, and the shape illustrated is also typical of Bristol and typologically of the earlier C18. Mark mould-imparted and raised.

fig a: Wills's Museum, Bristol; 5/64



a



b

WILLIAM NICHOLAS (fl 1730-75)

Marks mould-imparted and raised; decoration on fig b also mould-imparted and raised.

fig a: Bristol City Museum; 4/64

fig b: Bristol City Museum; 4/64

RICHARD NUNNEY (fl 1652-96)

Marks impressed.

fig a: Pritchard Collection, British Museum; 7/64

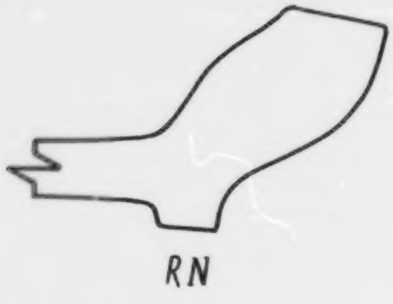
fig b: Blaise Castle Folk Museum, Bristol; 7/64

fig c: Stroud; 7/64

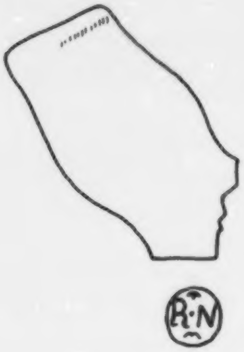
fig d: Pritchard Collection, British Museum; 8/64

fig e: Pritchard Collection, British Museum; 8/64

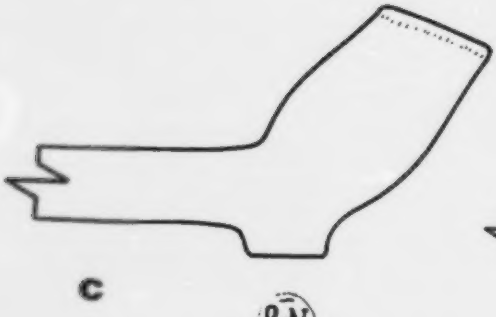
fig f: Birmingham; 8/64



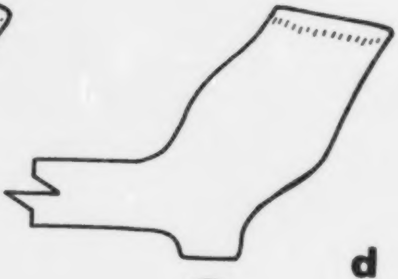
a



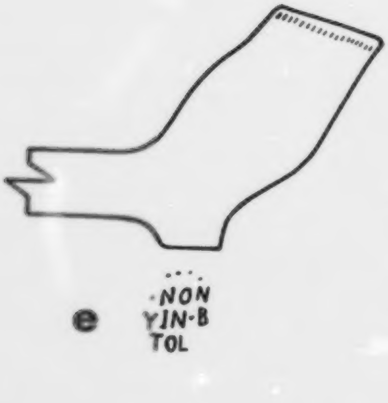
b



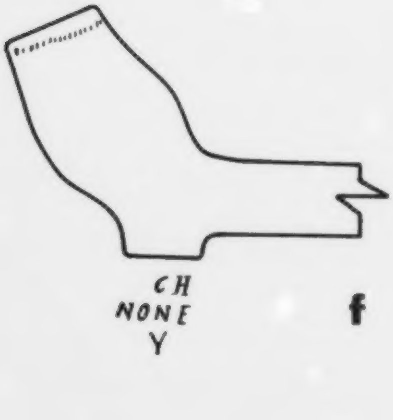
c



d


·NON
YIN·B
TOL

e



f

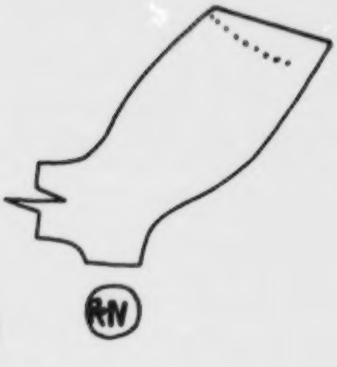
RICHARD NUNNEY (fl 1652-96)

(continued)

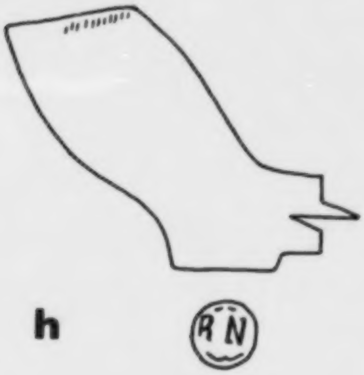
fig g: Bristol City Museum; 8/64

fig h: Wills's Museum, Bristol; 8/64

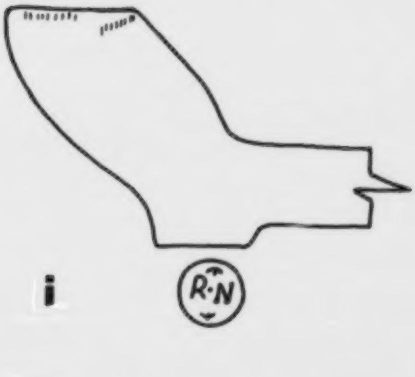
fig i: Wills's Museum, Bristol; 7/64



g



h



i

JOHN OKELY I (fl 1732-39)

All the illustrated examples probably come from the unpublished examination of a kiln at the Water St-Hollister St site (now under the Bond St-George Whitefield Ct complex) attributed to Okely. The kiln site is in St James parish, where Okely is recorded in the 1734 election, but by the 1739 election Okely had moved to St Michael parish, which would suggest the bowls illustrated can be closely dated to the 1730s. Typologically they are too early to be products of John Okely II (fl 1768-98). Figs b and c appear to be kiln wasters - their shapes are somewhat distorted. Cartouches in figs c-e are mould-imparted and raised; the marks facing the smoker in figs a, b, and e are impressed. Examples identical to fig d are known but with the IO surmounted by a star impressed facing the smoker.

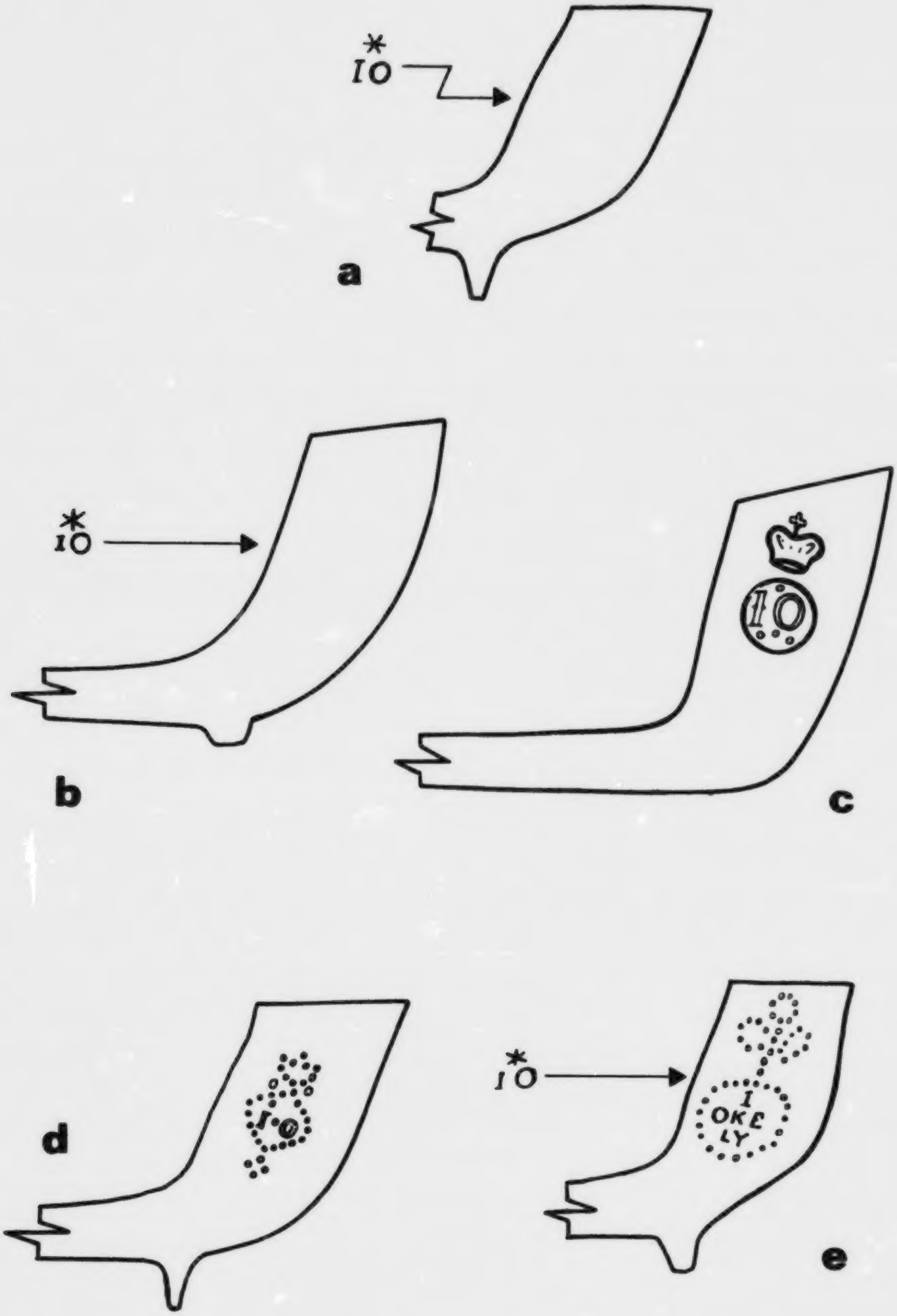
fig a: Bristol City Museum; 4/64

fig b: Bristol City Museum; 5/64

fig c: Bristol City Museum; 5/64

fig d: Bristol City Museum; 5/64

fig e: Bristol City Museum; 5/64


*
IO
a
*
IO
IO
b
c
I·O
d
*
IO
I
OKEL
LY
e

THOMAS OWEN I (fl 1696-98), THOMAS OWEN II (fl 1725-39), and THOMAS OWEN III (fl 1739)

Typologically, fig a is likely to be a product of the earliest Thomas; figs b-e could have been produced by any of the three depending on when Thomas I died (he is known to have been dead by 1725). Assuming fig a is a product of Thomas I, however, it is possible Thomas II is represented by figs b-e rather than Thomas III, for Thomas II was a son of Thomas I and presumably inherited the family mark. A heelless bowl with the same mark is also known. Mark impressed.

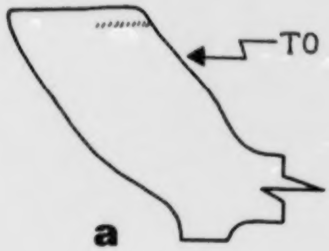
fig a: Blaise Castle Folk Museum,
Bristol; 7/64

fig b: Bristol City Museum; 6/64

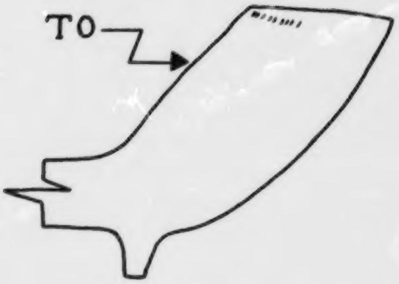
fig c: Bristol City Museum; 5/64

fig d: Bristol City Museum; 5/64

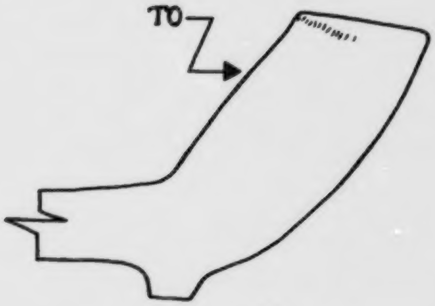
fig e: Taunton; 4/64



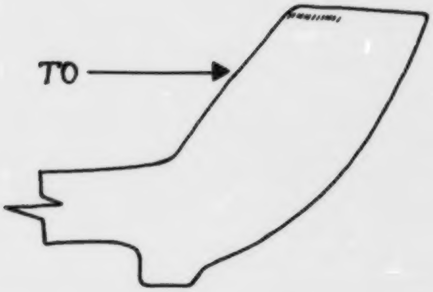
a



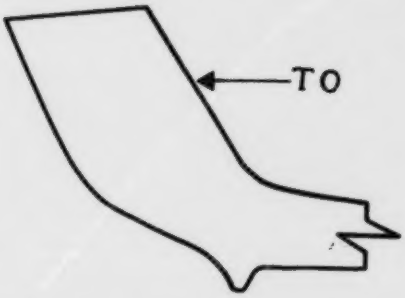
b



c



d



e

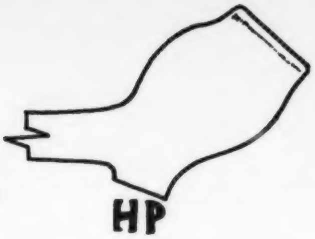
HUMPHREY PARTRIDGE (fl 1650-52)

These examples are probably Partridge products; if so, they are unusually well dated as Partridge became free 1650 and had died or left Bristol by 1654. Marks impressed.

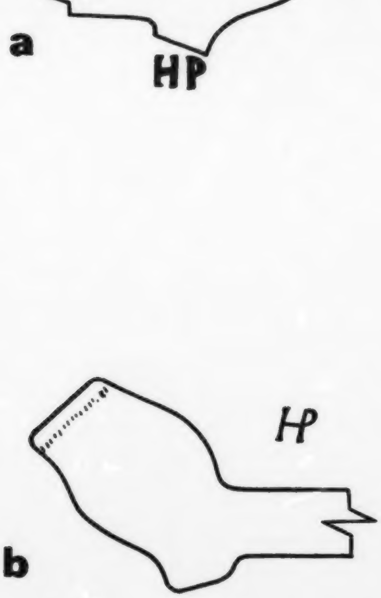
fig a: Pritchard Collection, British Museum; 7/64

fig b: Blaise Castle Folk Museum, Bristol; 8/64

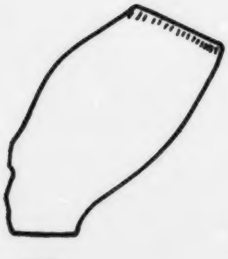
fig c: Bristol City Museum; 7/64



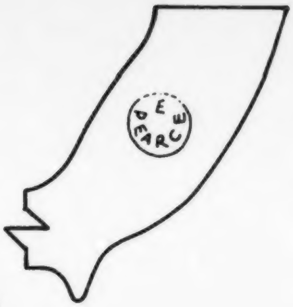
a



b



c

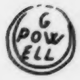


a

EDWARD PEARCE (fl 1775) or ELI PEARCE (fl 1766-81)

Although this bowl form should date to a half-century earlier than the earliest dates of either Edward or Eli Pearce there are no other E. Pearces pipemakers known in Bristol nor indeed (Oswald 1960a: 85) elsewhere in England. There is a possibility that Edward and Eli Pearce may be the same person, but unless he (or they) were in business decades before their earliest at present known dates an explanation for their using a mould producing bowls so much earlier in style is difficult to find. As is discussed in 6: III-V, however, the law requiring the taking of freedom before setting up in a trade was becoming a dead letter in the C18 and there are cases of pipemakers not taking their freedom until 30 or more years after commencing an apprenticeship. (The Edward Pearce reference is from a trade directory; the 1766 reference to Eli Pearce is to his becoming free, which he did on the grounds he had married the daughter of a pipemaker, so that one might postulate he had worked with his father-in-law. The father-in-law was either John Bonner I (fl 1712) or John Bonner II (fl 1754-84).) Mark mould-imparted and raised.

fig a: Bristol City Museum; 5/64



GEORGE POWELL (fl 1704/5-34)

The cartouche shown occurs on a fragment of a spurred type 9 bowl from the Back Hall excavations in Bristol (Bristol City Museum). (The fragment is illustrated by Reed (1961: 275 fig 12,9, p.282), who describes the mark as incised - a term he apparently uses for any sharply-defined mark, whether impressed or raised - but in fact the mark is mould-imparted and raised as are all cartouches of this type.

EDWARD REED (fl 1706-23, poss. to 1735)

Fig *a* is typologically early for Reed's freedom date of 1706 and might possibly be considered a product of Edward Randall I (fl 1688-89) or his son Edward Randall II (fl 1699), though fig *b* is of the same form except that the heel has been replaced with a spur and cannot be much later and on the evidence of its mark is indisputably a Reed product. Fig *e* certainly indicates Reed did use his initials impressed on the bowl facing the smoker, whatever the Randalls may have done. The cartouche in fig *a* bears no visible letters, but a bowl of this form is known with the ER impressed facing the smoker and the same letters mould-imparted and raised in a cartouche a la fig *f*. All cartouches here are mould-imparted and raised; the letters facing the smoker in figs *a*, *e*, and *f* are impressed.

fig *a*: Royal Institution, Swansea; 5/64

fig *b*: Oswald 1968; 5/64

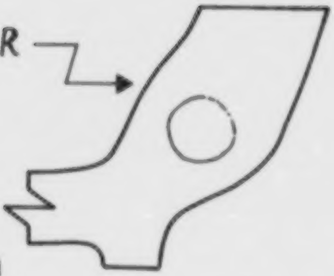
fig *c*: Cheltenham; bore diameter unknown

fig *d*: Oswald 1968; 6/64

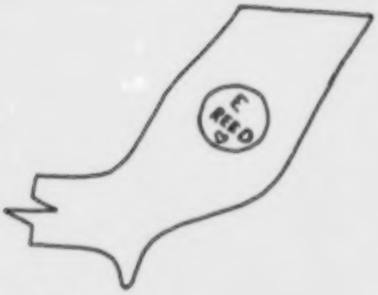
fig *e*: Oswald 1968; 5/64

fig *f*: Oswald 1968; 5/64

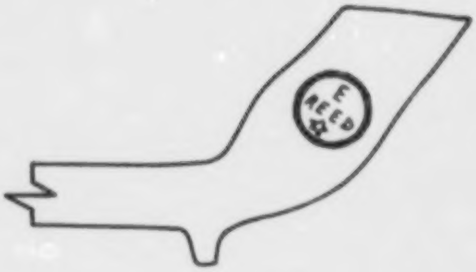
fig *g*: Béchard *in litt*. 15 July 1968; bore diameter unknown



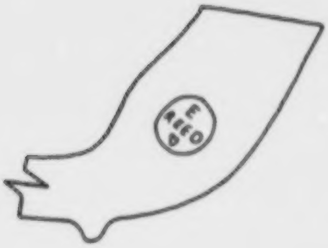
a



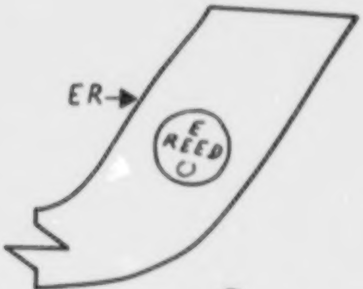
b



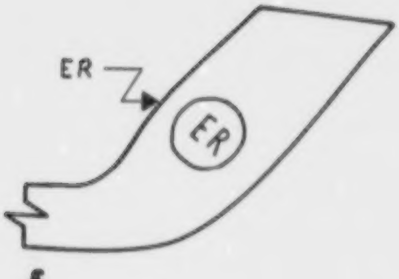
c



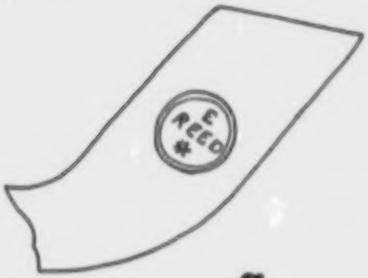
d



e



f



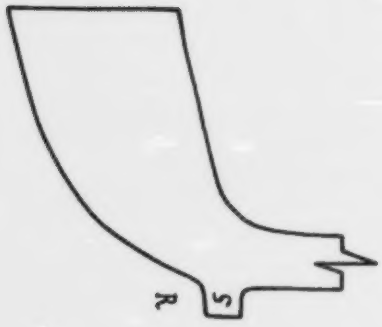
g

SAMUEL RICHARDS II (fl 1774-1812 or 1817, in London until ca.1778) and SAMUEL RICHARDS III (fl 1812-30, in Swansea by 1830)

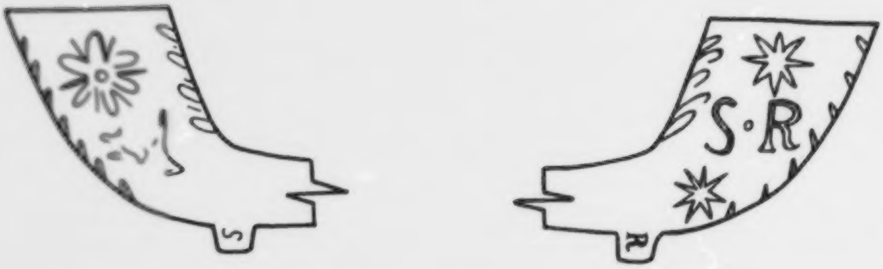
Both these examples were found in Victoria St, a thoroughfare built in the later 1860s (Latimer 1887: 422) and cutting through St Thomas and Temple parishes immediately to the east of the Richards's family property at 34 Thomas St (now St Thomas St). Number 34 is actually numbered on Asmead's 1828 plan of Bristol; it lay on the east side of the street six properties south of Long Row. Marks mould-imparted and raised.

fig _a_: Bristol City Museum; 5/64

fig _b_: Bristol City Museum; 5/64



a



b

RING family (fl 1803-83 or 1884)

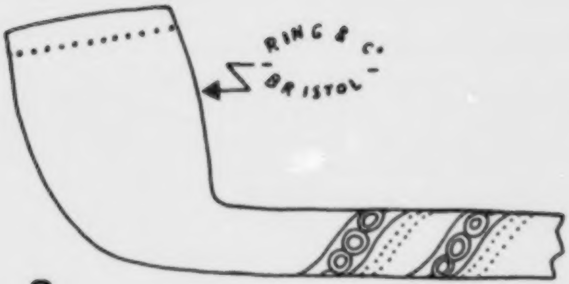
Fig g is not certainly a Ring pipe, but it occurs on the same site as the fragments shown in figs b and h and it seems very probable that the stem fragment attached to this bowl, had it been longer, would have shown the RING BRISTOL/OHIO mark shown on the stem fragment in fig b. In all fragments illustrated decoration and marks are mould-imparted except for the mark facing the smoker shown in fig a which is impressed (stem decoration and rouletting at mouth of bowl in fig a are mould-imparted).

fig a: Blaise Castle Folk Museum, Bristol; 5/64

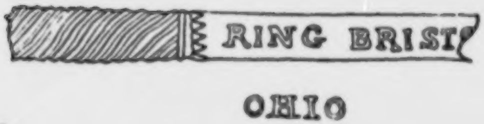
fig b: National Historic Sites Service Collections, Ottawa - Coteau-du-Lac excavations; bore diameter unknown

fig c: Simard in litt. 5 May 1972; bore diameter unknown

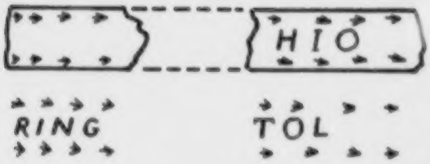
fig d: Simard in litt. 5 May 1972; bore diameter unknown


RING & Co
BRISTOL

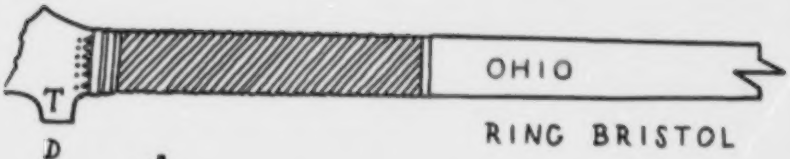
a


RING BRISTO
OHIO

b


HIO
RING
TOL

c


T
D
OHIO
RING BRISTOL

d

RING family (fl 1803-83 or 1884)

(continued)

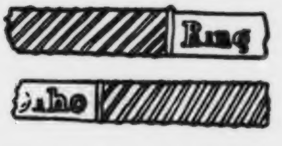
fig e: Kenyon in litt. 3 October 1972; bore diameter unknown

fig f: Kenyon in litt. 3 October 1972; bore diameter unknown

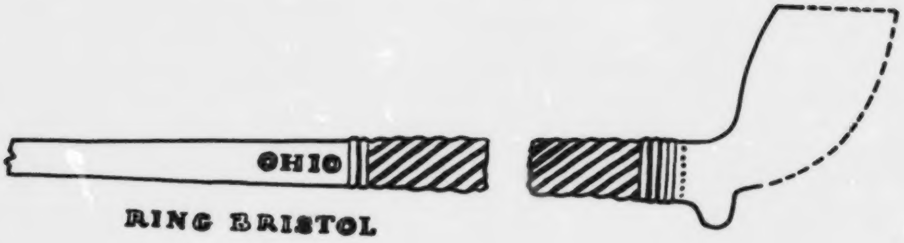
fig g: National Historic Sites Service collections, Ottawa -
Coteau-du-Lac excavations; 5/64

fig h: National Historic Sites Service collections, Ottawa -
Coteau-du-Lac excavations; bore diameter unknown

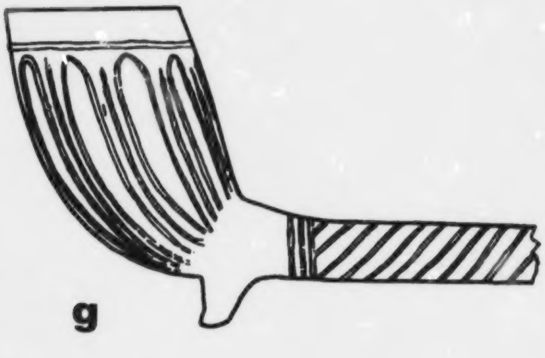
The scale of fig f is approximately 2:3



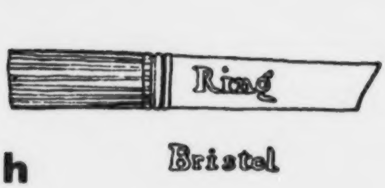
e


OHIO
RING BRISTOL

f



g


Ring
Bristol

h

FRANCIS RUSSELL I (fl 1669-96)

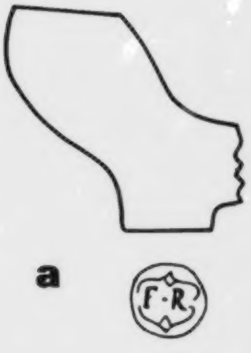
Pipes probably attributable to Francis Russell I, though fig d is typologically late enough to be a possible product of Francis's son Francis Russell II, fl 1698/9. Marks impressed.

fig a: Wills's Museum, Bristol; 7/64

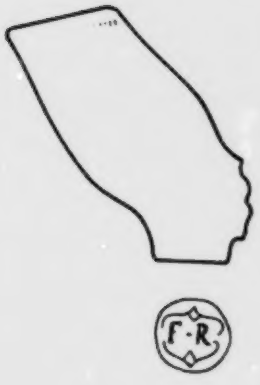
fig b: Wills's Museum, Bristol; 8/64

fig c: Bristol City Museum; 7/64

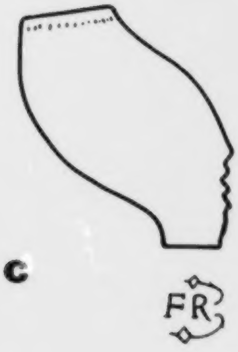
fig d: Pritchard Collection, British Museum; 7/64



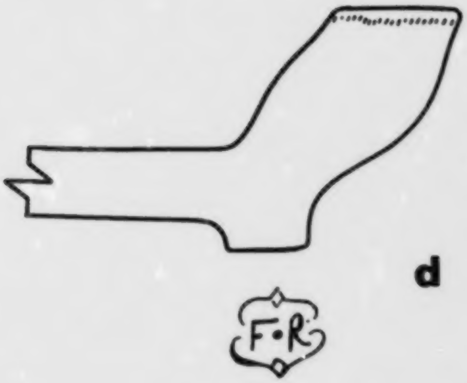
a



b



c

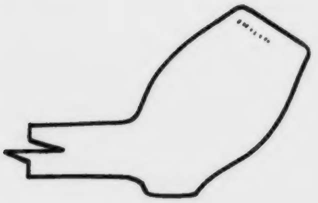


d

THOMAS SMITH (fl 1651-54)

Mark impressed.

fig *a*: Pritchard Collection, British Museum; 7/64


a
TS

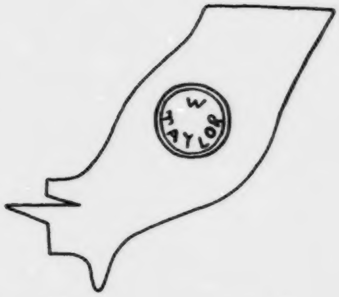
WILLIAM TAYLOR (fl 1688/9-1706)

Marks mould-imparted and raised.

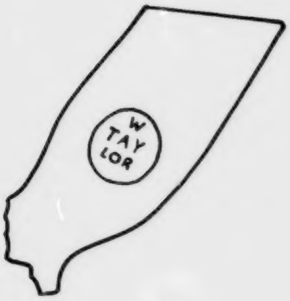
fig _a_: Bristol City Museum; 6/64

fig _b_: Oswald 1968; 5/64

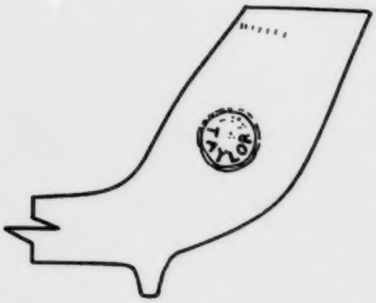
fig _c_: Bristol City Museum; 5/64



a



b



c

ROBERT TIPPET I (fl 1660-80), ROBERT TIPPET II (fl 1678-1713 poss. to 1720), and ROBERT TIPPET III (fl 1713-poss. 1720)

Separating the products of the three generations of Robert Tippet is in most cases difficult and in the case of the second and third Roberts almost impossible. A major reason for this is the dearth of dating evidence available for Robert II and Robert III after 1720, when there is a reference which could be to either of these two, despite the fact that their products occur in definitely dated contexts in North America into the 1750s and in one case (fig z) in a shipwreck datable to 1760. The slightly-differing cartouches are unlikely to help individual identification at least until much more closely-dated archaeological material has been found, for designs on the mould become worn by the clay and have to be periodically replaced, at which time designs or letter-positioning could be changed or changed back again without the rest of the mould necessarily being affected.

Figs a-f can be attributed with some confidence to Robert I, who died between 1680 and 1687, though as his widow J(o)ane Tippet is known to have produced pipes and to have been active at least as late as 1696 and probably (on finds from North America) into the early C18, figs c-e might possibly be considered her products even though the mark used bears no change (in typologically later pipes similar to figs q-y she used a cartouche bearing IR/TIP/ET or I-R/TIP/ET.) Figs g-i could belong to either Robert I or Robert II (or conceivably J(o)ane), figs j-o are probably Robert II's products, and figs p-y could belong to either Robert II or Robert III as we have no idea of their later dates, but fig z can be attributed to Robert III as this pipe together with a number of others of the same form and mark came from a 1760 shipwreck and as Robert II was probably born in 1660 the chances of his still being alive, much less working, 100 years later are remote.

Robert Tippet family bowls come in almost limitless variety of forms, marks, and combinations of marks; a fair selection is shown here. Among variations of the cartouche are ones with watch-wheel surrounds, with or without raised dots at the cardinal points; and one with corded-circle surround. Heelless or spurless pipes such as examples q-z appear to have been an "export only" form (those recorded here from Bristol are kiln or other wasters), being rarely found in England but being the standard form in North America. Tippet pipes are consistently well-finished, sometimes being stroke-burnished.

Detailed research in parish and other records for Tippet family evidence would probably be very useful in clearing up the mystery of their later period, for it is extra-ordinary that a family which exported - on the evidence of finds - almost as much to North America as all other Bristol makers of the period combined should be so poorly known. For instance, they are not mentioned in the poll books, though the William Tippets (Robert I's younger son and his son) appear there regularly. Rather ironically, however, only a single product of

ROBERT TIPPET I (fl 1660-80), ROBERT TIPPET II (fl 1678-1713 poss. to 1720), and ROBERT TIPPET III (fl 1713-poss. 1720)

(continued)

that branch of the family is known. Marks on figs a-f, j-o, and r are impressed; the cartouches on figs g-i, p, q, and s-z are mould-imparted and raised; marks facing smoker on figs g, h, p-u, and w are impressed.

fig a: Blaise Castle Folk Museum, Bristol; 8/64

fig b: Blaise Castle Folk Museum, Bristol; 7/64

fig c: Wills's Museum, Bristol; 8/64

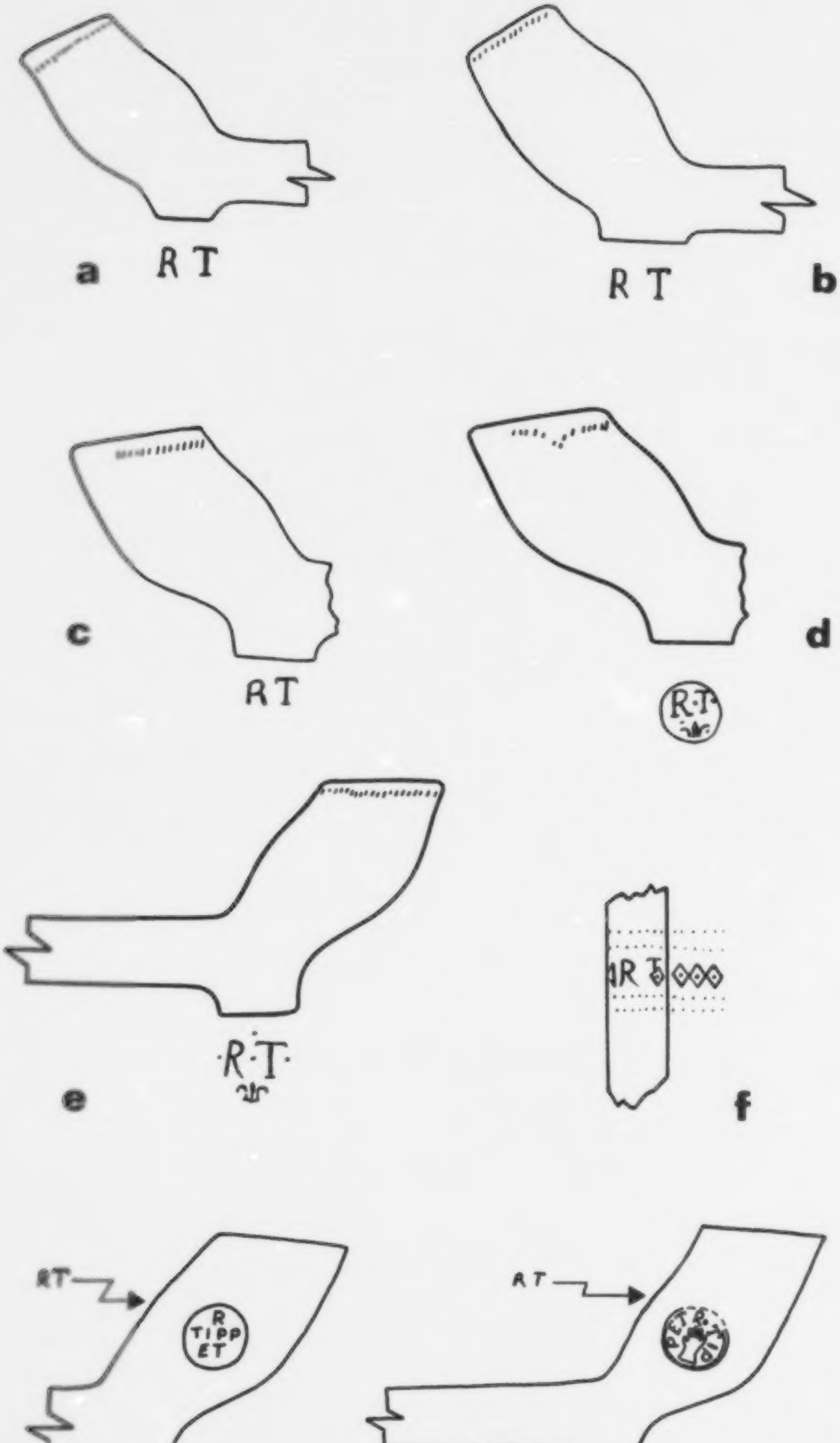
fig d: Wills's Museum, Bristol; 8/64

fig e: Pritchard Collection, British Museum; 7/64

fig f: Buchanan and Heite 1972; 8/64

fig g: Bristol City Museum; 5/64

fig h: Bristol City Museum; bore diameter unknown


a
RT
RT
b
c
RT
d
R·T
·R·T·
e
RT
f
RT
R
TIPP
ET
g
RT
h

ROBERT TIPPET I (fl 1660-80), ROBERT TIPPET II (fl 1678-1713 poss. to 1720), and ROBERT TIPPET III (fl 1713-poss. 1720)

(continued)

fig *i*: Bristol City Museum; bore diameter unknown

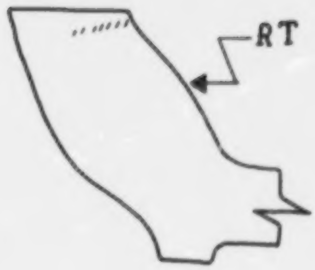
fig *j*: Bristol City Museum; 6/64

fig *k*: Blaise Castle Folk Museum, Bristol; 8/64

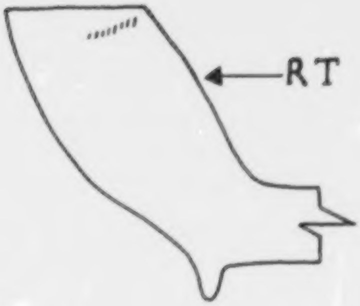
fig *l*: Blaise Castle Folk Museum, Bristol; 6/64

fig *m*: Bristol City Museum; 7/64

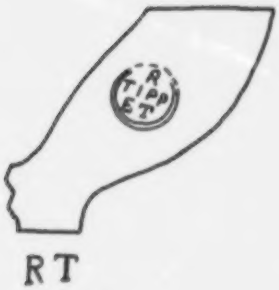
fig *n*: Bristol City Museum; 7/64



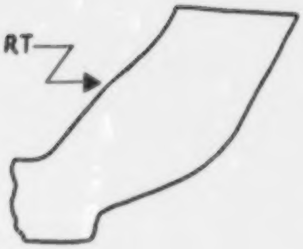
i



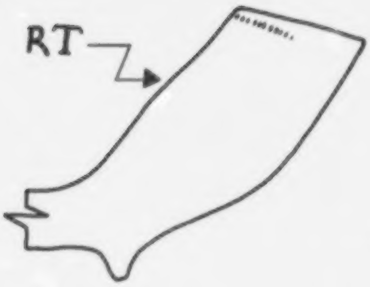
j



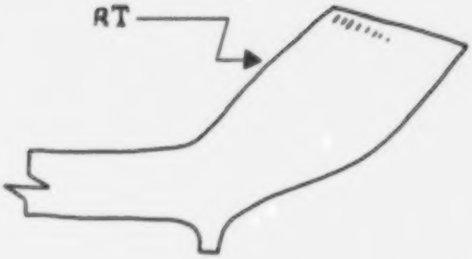
k



l



m



n

ROBERT TIPPET I (fl 1660-80), ROBERT TIPPET II (fl 1678-1713 poss. to 1720), and ROBERT TIPPET III (fl 1713-poss. 1720)

(continued)

fig *o*: Bristol City Museum; 6/64

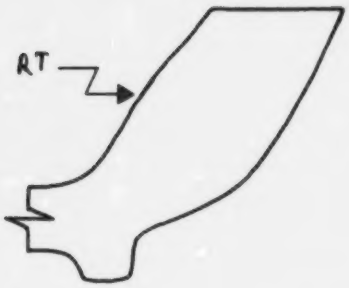
fig *p*: Oswald 1968; 5/64

fig *q*: Bristol City Museum; 5/64

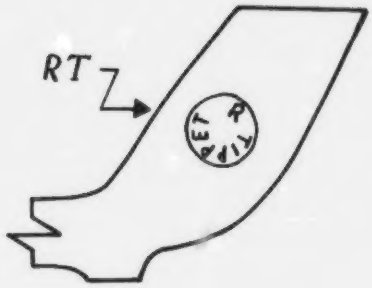
fig *r*: Bristol City Museum; 5/64

fig *s*: Oswald 1968; 5/64

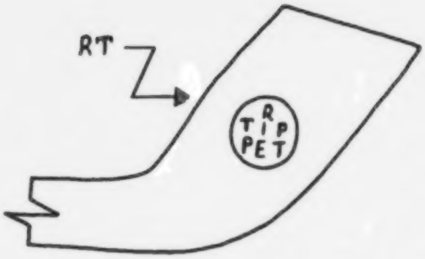
fig *t*: Bristol City Museum; 5/64



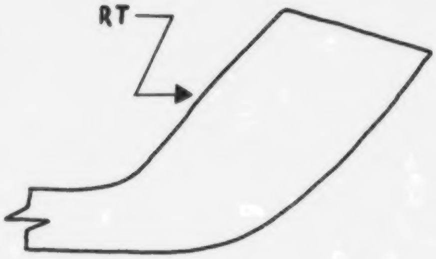
o



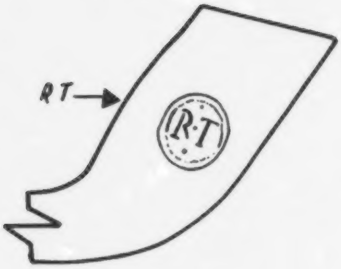
p



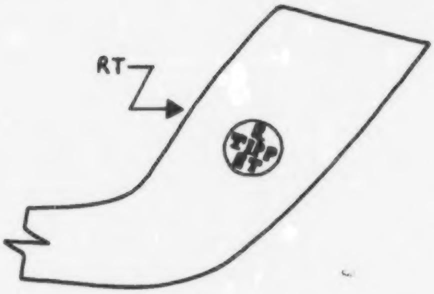
q



r



s



t

ROBERT TIPPET I (fl 1660-80), ROBERT TIPPET II (fl 1678-1713 poss. to 1720), and ROBERT TIPPET III (fl 1713-poss. 1720)

(continued)

fig u: Bristol City Museum; 5/64

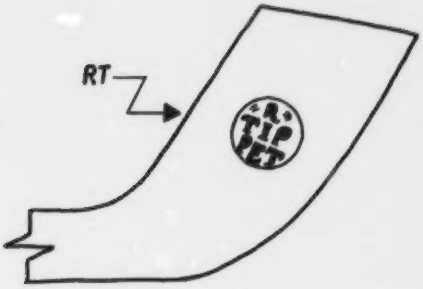
fig v: Blaise Castle Folk Museum, Bristol; 5/64

fig w: Bristol City Museum; 5/64

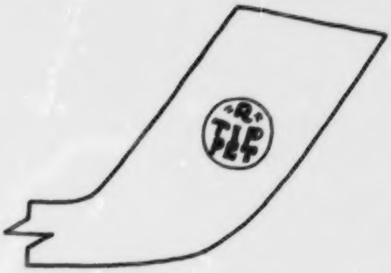
fig x: Blaise Castle Folk Museum, Bristol; bore diameter unknown

fig y: Birmingham; 5/64

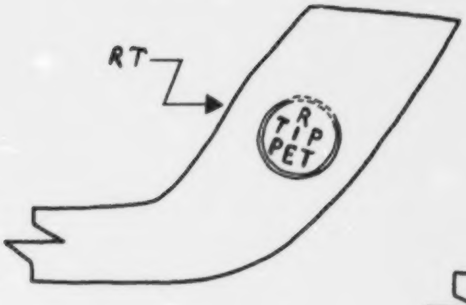
fig z: National Historic Sites Service, Ottawa - Restigouche excavations; 5/64



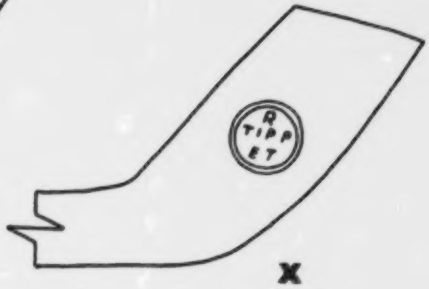
u



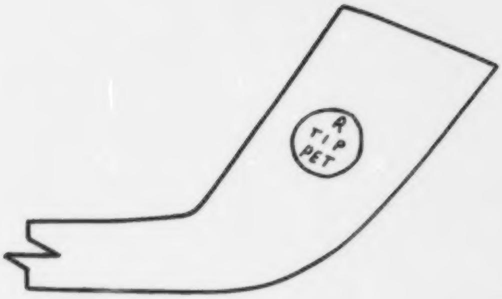
v



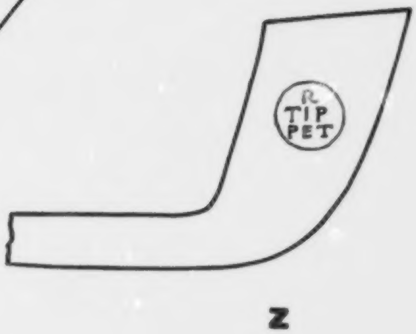
w



x

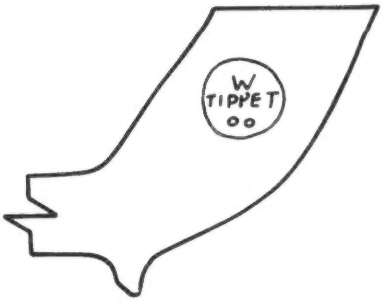


y



z

a

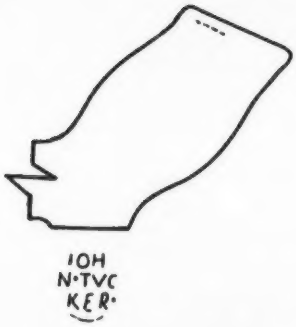


WILLIAM TIPPET I (fl 1689/90-1727/8) or
WILLIAM TIPPET II (fl 1713-22 and prob. 1739)

Came from the area of the Bristol Bus Station, but not associated with the Robert Tippet family kiln material from that site. Mark mould-imparted and raised.

fig a: Omwake-Marochan correspondence; bore diameter unknown

a


IOH
N·TVC
KER·

JOHN TUCKER I (fl 1662-87)

Mark impressed.

fig a: Bristol City Museum; 7/64

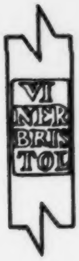
GEORGE VINER (fl 1747-57) and ANNA VINER (fl 1775-1805)

The stem fragment illustrated in fig *a* comes from a ca.1758-68 context at the Fortress of Louisbourg in Nova Scotia, and as there are no known references to George Viner after 1757 nor to Anna Viner his widow prior to 1775 this stem mark could belong to either maker. The bowl shown in fig *b*, however, is certainly an Anna Viner product, the bowl form, the initials A/V on the heel, and the context in which it was found (Fort Carleton, on Buck or Carleton Island, New York state, occupied 1778-1813) all agreeing with a late C18 date. (This bowl also appears with a heart outlined on the heel and the Viner mark facing the smoker.) The stem fragment illustrated in fig *c* should also be an Anna Viner product as this form of decoration does not appear before the late C18. The mark in fig *a* is raised from a depressed background and probably impressed by a rocker stamp; in fig *b* the letters on either side of the heel are mould-imparted and raised, and the mark facing the smoker is impressed; and in fig *c* the decoration and name are mould-imparted and raised.

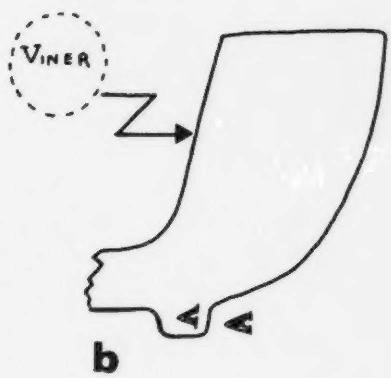
fig *a*: Lindsay *in litt*. 6 December 1972; bore diameter unknown

fig *b*: Hagerty *in litt*. 12 April 1967; 4/64

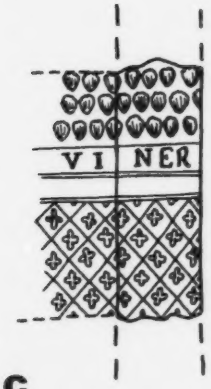
fig *c*: Bristol City Museum; 4/64


VI
NER
BRIS
TOL

a



b



c

JOHN WALL (fl 1630/1-47) and JANE WALL (fl 1650-60)

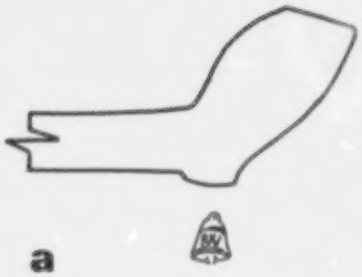
These pipes are probably attributable to John Wall and his widow Jane. The significance (if any) of the bell enclosing the initials shown in fig a is unknown, but the stamp used is finely made. Possibly the Walls used a bell as their symbol, possibly they worked adjacent to a church, possibly they were near or connected with a public-house called the "Bell". Marks impressed.

fig a: Pritchard Collection, British Museum; 8/64

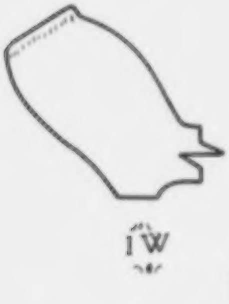
fig b: Wills's Museum, Bristol; 6/64

fig c: Pritchard Collection, British Museum; 8/64

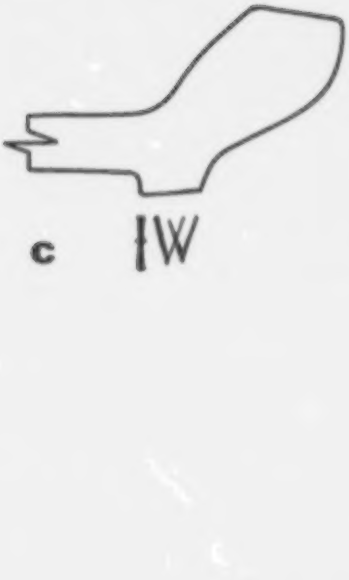
fig d: Wills's Museum, Bristol; 7/64



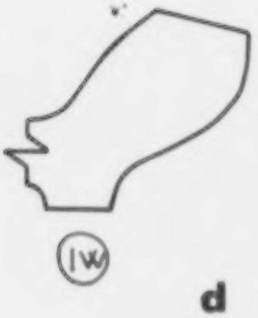
a



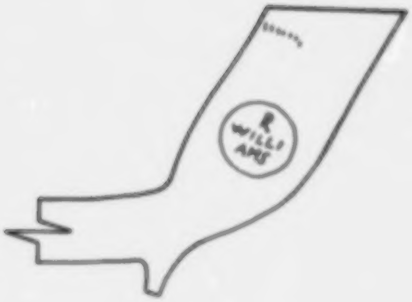
b



c



d

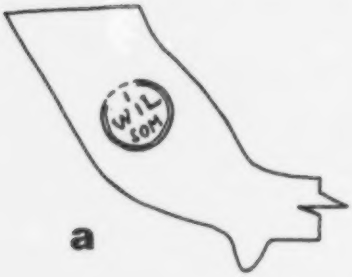


a

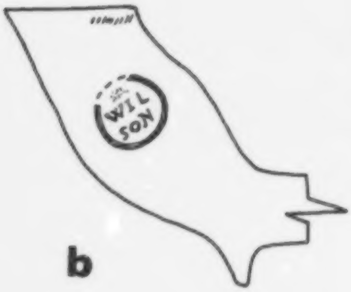
ROGER WILLIAMS (fl 1668-77) or ROBERT WILLIAMS I (fl 1685-1714)

Fig a is more probably the product of Robert Williams I but if Roger Williams should have worked into the 1680s or 1690s - he is known to be dead by 1692 but was possibly alive in the later 1680s - he too could have produced this bowl. Mark mould-imparted and raised.

fig a: Bristol City Museum; 6/64



a



b

JOHN WILSON (fl 1707-22)

Note mis-spelling of surname in fig a. Wilson's pipes are unusual in that his cartouche appears on the left side of the bowl whereas virtually almost every other Bristol maker uses the right side. Mark mould-imparted and raised.

fig a: Bristol City Museum; 5/64

fig b: Bristol City Museum; 5/64

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

Publications available by mail from Printing and Publishing, Supply and Services Canada, Ottawa, Ontario K1A 0S9, Canada, or through your bookseller.

1 Inventaire des marchés de construction des archives civiles de Québec, 1800-1870, by Geneviève G. Bastien, Doris D. Dubé and Christina Southam. 1975. 3 vols. $20.00; $24.00 outside Canada.

2 Histoire économique et sociale de Saint-Lin, 1805-1883, et l'importance de la famille Laurier, by Réal Bélanger. 1975. $4.00; $4.80 outside Canada.

3 Historique structural du fort George, by Yvon Desloges. 1975. $5.00; $6.00 outside Canada.

4 Plans de l'architecture domestique inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture commerciale et industrielle inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture publique, de l'architecture religieuse et du génie mécanique inventoriés aux Archives Nationales du Québec à Montréal, by André Giroux, Nicole Cloutier and Rodrigue Bédard. 1975. 3 vols. $11.00; $13.20 outside Canada.

5 A Report on a West Coast Whaling Canoe Reconstructed at Port Renfrew, B.C., by E.Y. Arima. 1975. $5.50; $6.50 outside Canada.

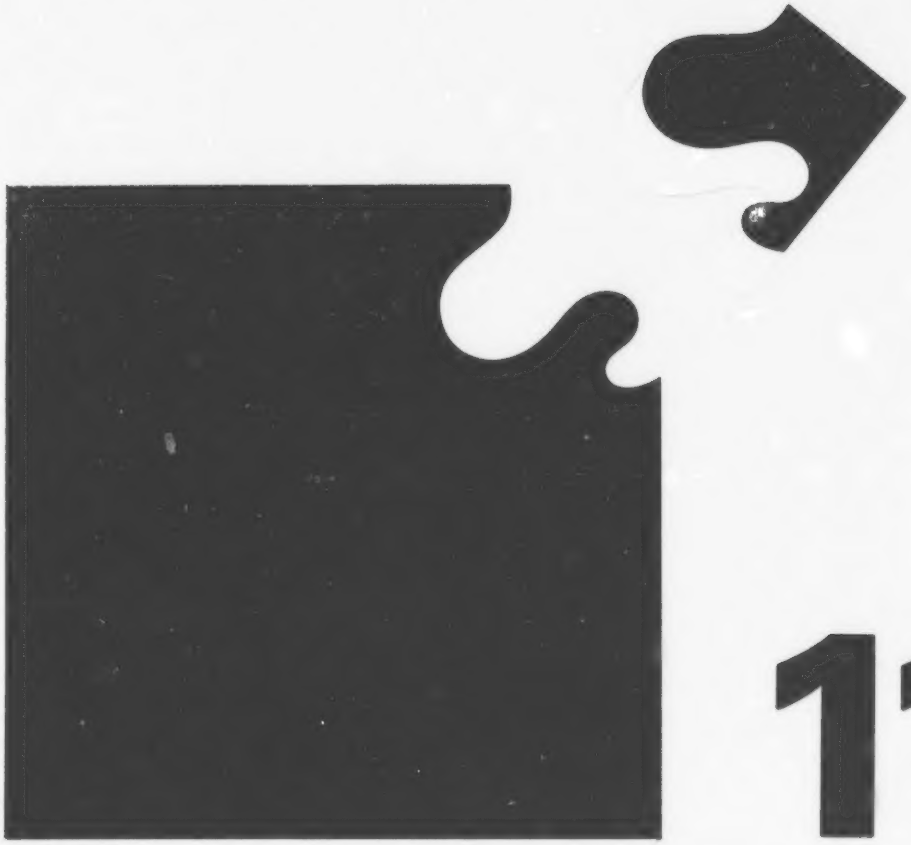
6 Louisbourg and the Indians: A Study in Imperial Race Relations, 1713-1760, by Olive Patricia Dickason; Surgeons and Surgery in Ile Royale, by Linda M. Hoad. 1976. $10.50; $12.60 outside Canada.

7 Archaeology and the Fur Trade: The Excavation of Sturgeon Fort, Saskatchewan, by Norman F. and Anne Barka. 1976. $6.25; $7.50 outside Canada.

8 Navy Hall, Niagara-on-the-Lake, by David Flemming; Fort Wellington: A Structural History, by David Lee; The Battle of the Windmill: November 1838, by David Lee. 1976. $5.75; $6.90 outside Canada.

9 Fort George on the Niagara: An Archaeological Perspective, by John P. Wilson and Linda D. Southwood. 1976. $8.00; $9.60 outside Canada.

10 Etude sur la vie et l'oeuvre de Jacques Cartier (1491-1557), par Réal Boissonnault; Fouilles au parc Cartier-Brébeuf, Québec, 1959, par Kenneth E. Kidd; Fouilles au parc Cartier-Brébeuf, Québec, 1962, par John H. Rick; Archéologie de sauvetage au parc Cartier-Brébeuf, la ville du Quebec: juillet-aout 1969, par Marcel Moussette. 1976. In press.



11d

Parks Canada

Parcs Canada

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

11D

CLAY TOBACCO-PIPES, WITH PARTICULAR REFERENCE TO THE BRISTOL INDUSTRY

IAIN C. WALKER

NATIONAL HISTORIC PARKS AND SITES BRANCH

PARKS CANADA

DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS

DIRECTION DES PARCS ET DES LIEUX HISTORIQUES NATIONAUX

PARCS CANADA

MINISTERE DES AFFAIRES INDIENNES ET DU NORD

©Minister of Supply and Services Canada 1977.
Available by mail from Printing and Publishing,
Supply and Services Canada, Ottawa, K1A 0S9,
or through your bookseller.

Price Canada: $25.00 a set.
Price other countries: $30.00 a set.
Price subject to change without notice.

Catalogue No.: R64-81/1977-11
ISBN: 0-660-00869-6

Published by Parks Canada under authority
of the Hon. Warren Allmand,
Minister of Indian and Northern Affairs,
Ottawa, 1977.
QS-7027-013-BB-A1

The opinions expressed in this report are those of the author and not necessarily those of the Department of Indian and Northern Affairs.

Clay Tobacco-Pipes, with Particular Reference to the Bristol Industry

by Iain C. Walker

Volume A. Chapter 1 - Background
Chapter 2 - Manufacturing Processes
Chapter 3 - History of the Clay Pipe Industry
Chapter 4 - Pipemaking in Various Centres
Chapter 5 - Production Costs and Wages

Volume B. Chapter 6 - Bristol
Chapter 7 - Summary and Conclusions
Endnotes
Bibliography and References

Volume C. Appendices

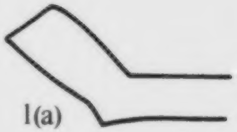
Volume D. Illustrations

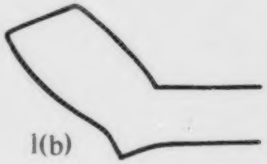
ILLUSTRATIONS

FIG 1a

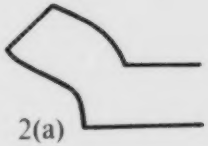
Typology of English pipes (from Oswald 1961: 59 fig 1 and 61 fig 2).

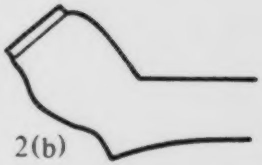
Note: All pipe drawings are at a scale of 1.1 unless otherwise noted.


1(a)

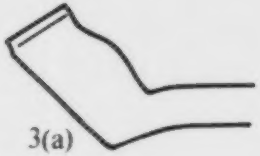

1(b)

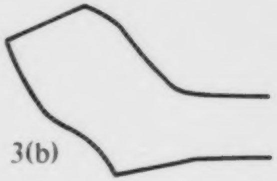
ca.1580-1630


2(a)

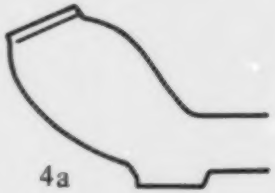

2(b)

ca.1580-1620

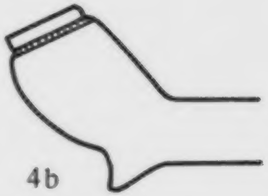

3(a)


3(b)

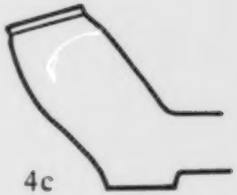
ca.1600-40


4a

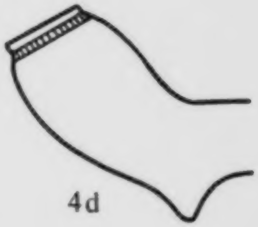
ca.1620-50


4b

ca.1620-40


4c

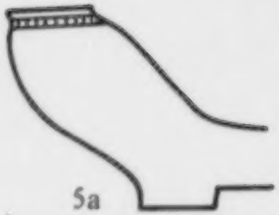
ca.1630-70

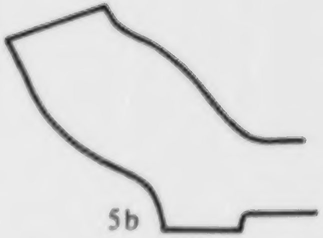

4d

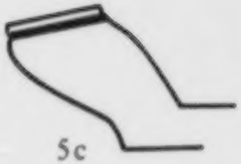
ca.1640-70

FIG 1b

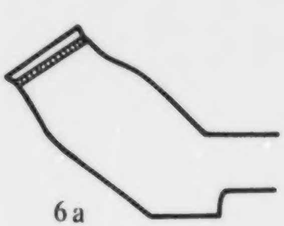
Typology of English pipes (from Oswald 1961: 59 fig 1 and 61 fig 2) (continued).


5a

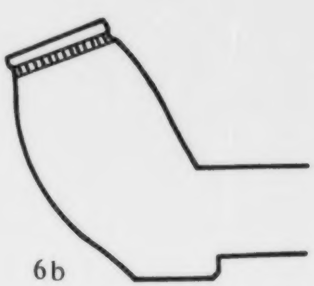

5b


5c

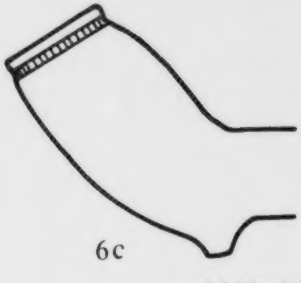
ca.1640-70


6a

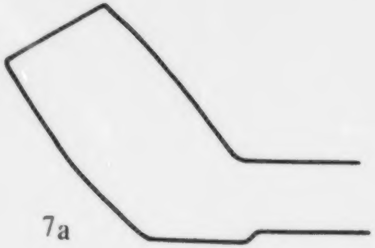
ca.1650-90


6b

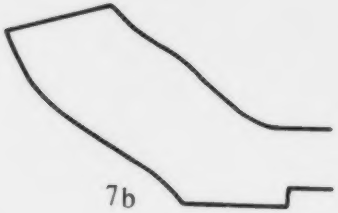
ca.1650-80


6c

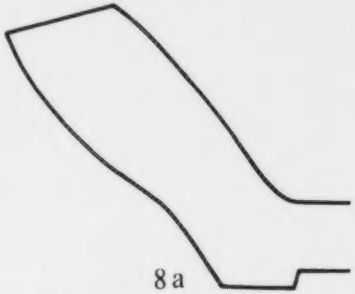
ca.1670-90

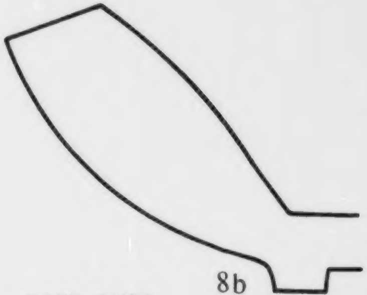

7a

ca.1670-1710


7b

ca.1680-1710

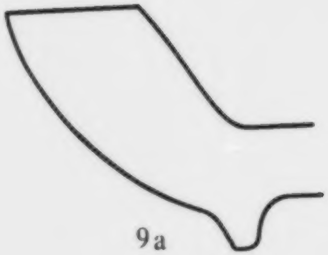

8a

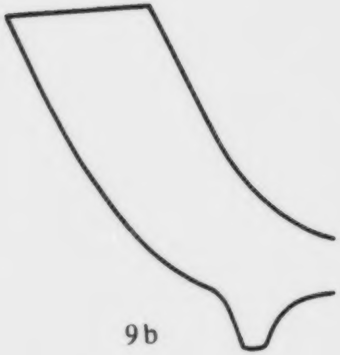

8b

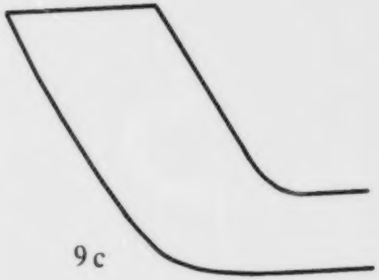
ca.1680-1720

FIG 1c

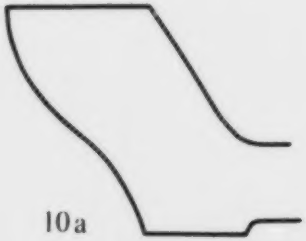
Typology of English pipes (from Oswald 1961: 59 fig 1 and 61 fig 2) (continued).

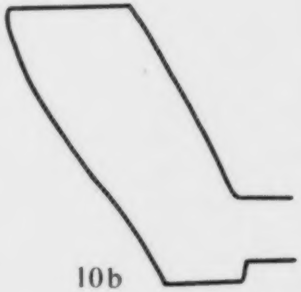

9a

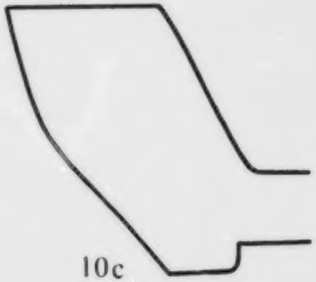

9b


9c

ca.1680-1730


10a

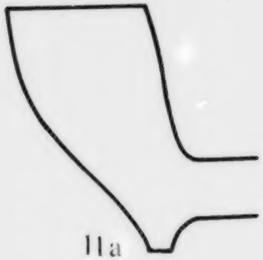

10b


10c

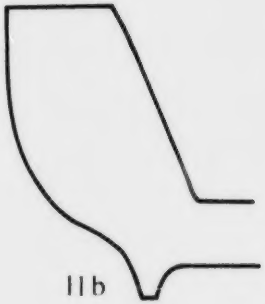
major part of C18

FIG 1d

Typology of English pipes (from Oswald 1961: 59 fig 1 and 61 fig 2) (continued).

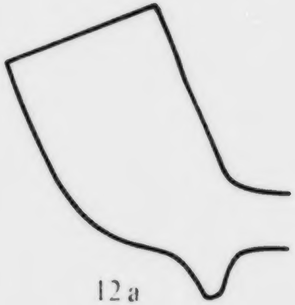


11a

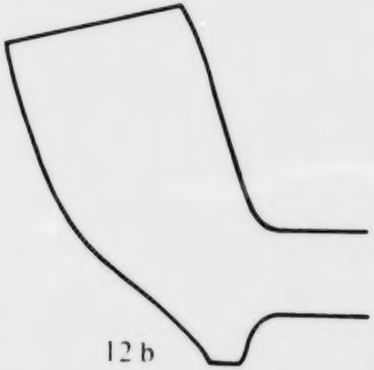


11b

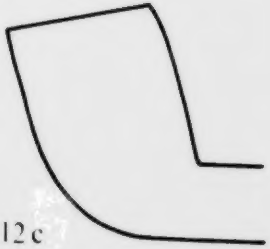
ca.1780-1850



12a



12b

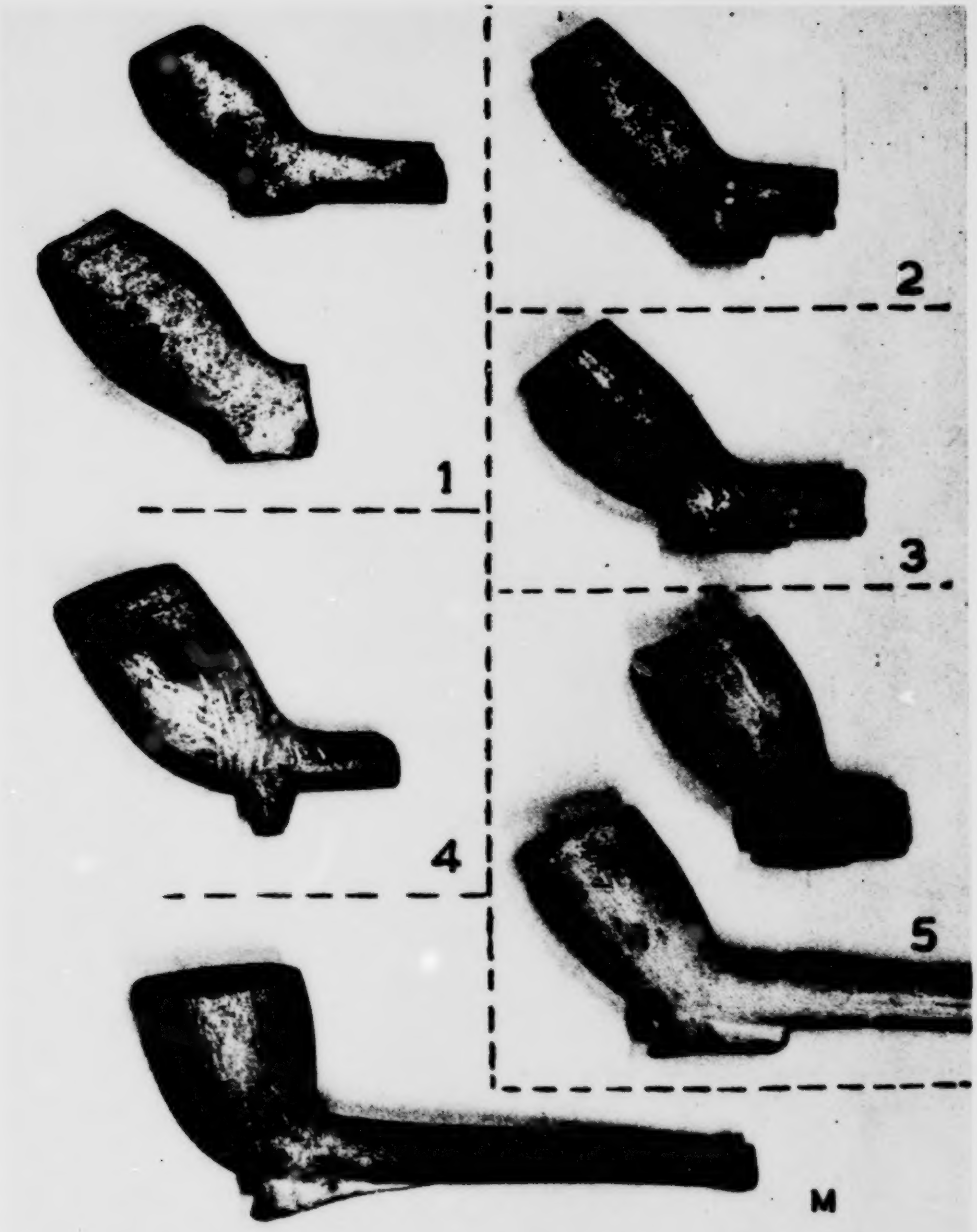


12c

ca.1820-70

FIG 2

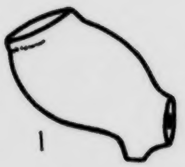
Typology of Broseley pipes (Oswald and James 1955a: 189; revised dating by Atkinson in Oswald 1970b: pl 201). M is a modern pipe. Scale 2:3.

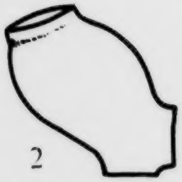


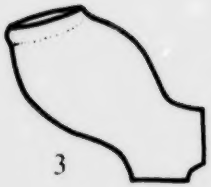
Types of Broseley Pipes in the seventeenth century. (Dating by D. R. Atkinson)
1. *Top. c.* 1630–40. Small initials on base
1. *Below. c.* 1670–80. Circular or heart-shaped initials on base
2. *c.* 1660–80. Initials on base
3. *c.* 1670–90. Abbreviated name or initials on base
4. *c.* 1690–1720. Initials occasionally on base of spur
5. *c.* 1680-1720. Full names in square stamps

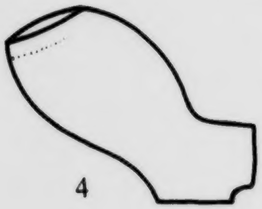
FIG 3a

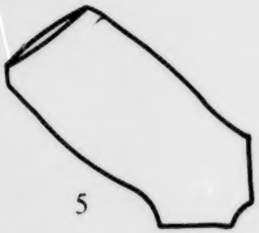
Typology of pipes in Sussex (from Atkinson 1964a: plate facing p.73).

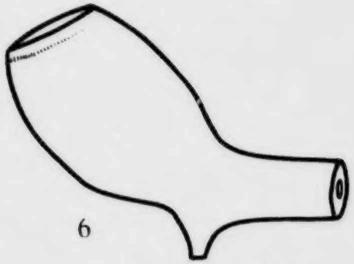

1
ca.1620

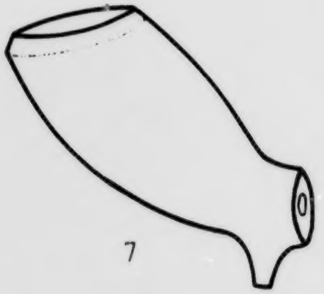

2
ca.1620

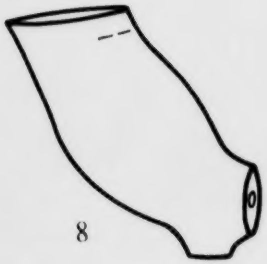

3
ca.1640


4
ca.1650


5
ca.1670


6
ca.1680


7
ca.1700


8
ca.1720

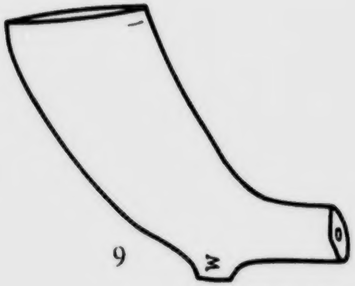
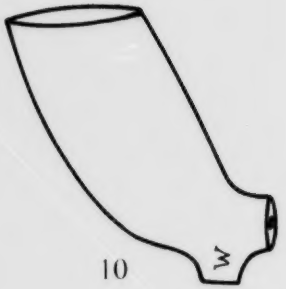

9
ca.1720-40

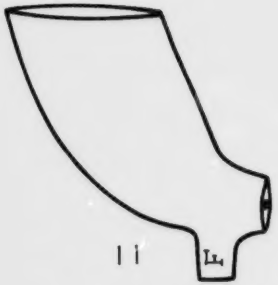
FIG 3b

Typology of pipes in Sussex (from Atkinson 1964a: plate facing p.73) (continued).



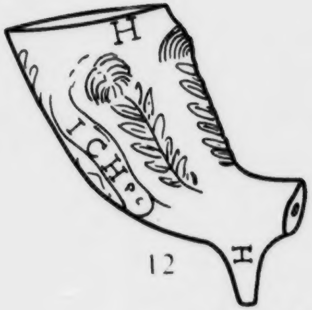
10

ca.1760



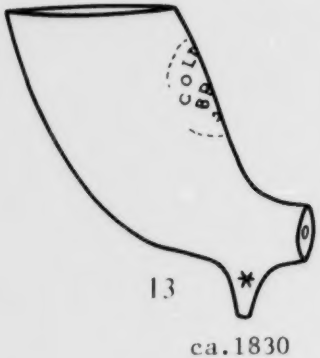
11

ca.1770-1800



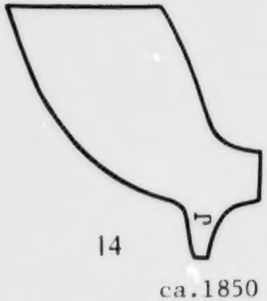
12

ca.1770-1800



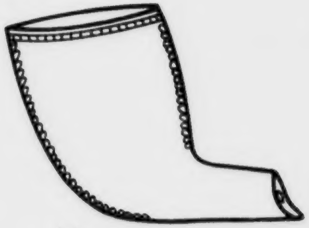
13

ca.1830



14

ca.1850

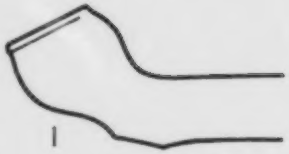


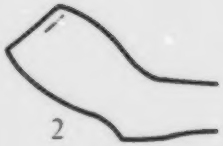
15

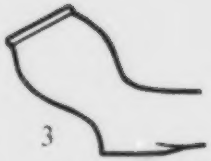
ca.1870

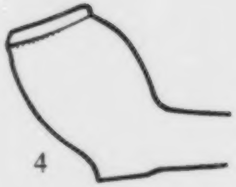
FIG 4a

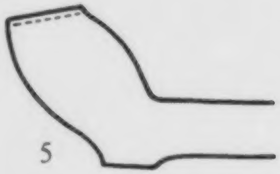
Typology of pipes found in London (from Atkinson and Oswald 1969: 178 fig 1 and 180 fig 2).

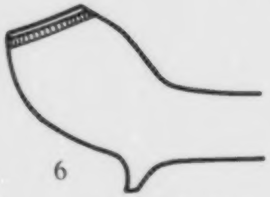

1
ca.1580-1610

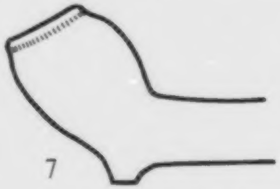

2
ca.1580-1610

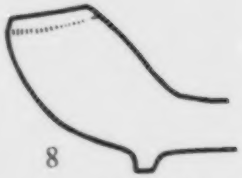

3
ca.1580-1610

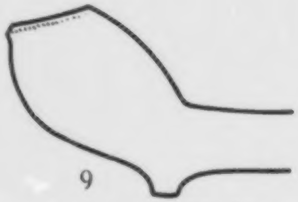

4
ca.1610-40

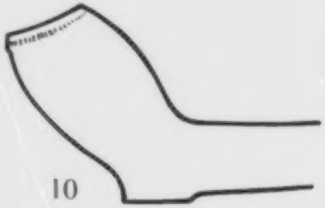

5
ca.1610-40

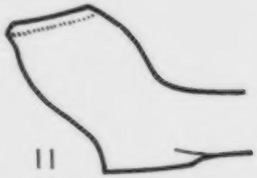

6
ca.1610-40

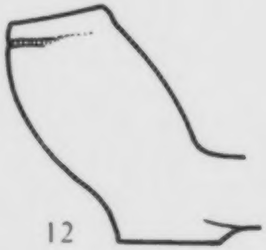

7
ca.1610-40

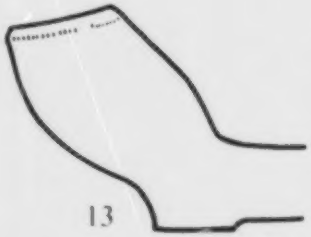

8
ca.1610-40


9
ca.1640-60


10
ca.1640-60


11
ca.1640-70


12
ca.1640-70


13
ca.1660-80

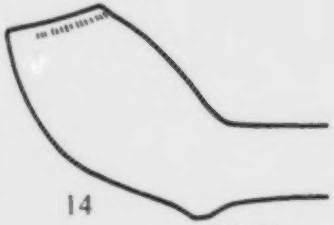
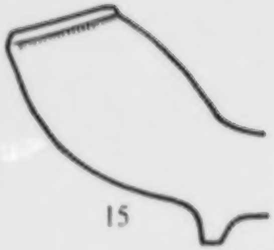
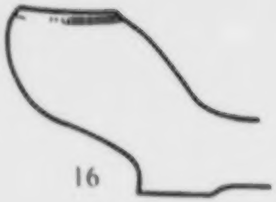
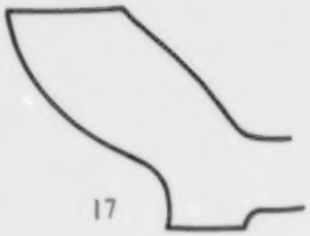

14
ca.1660-80

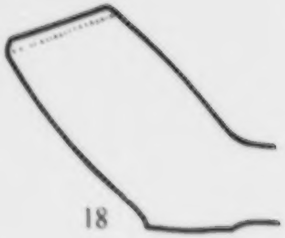
FIG 4b

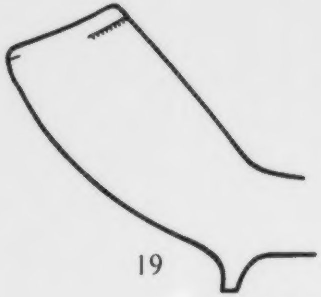
Typology of pipes found in London (from Atkinson and Oswald 1969: 178 fig 1 and 180 fig 2) (continued).

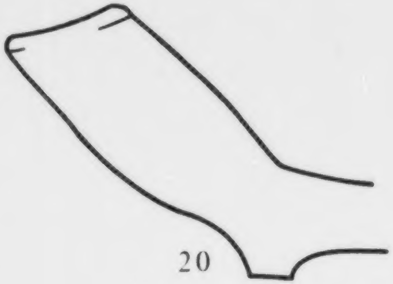

15
ca.1660-80

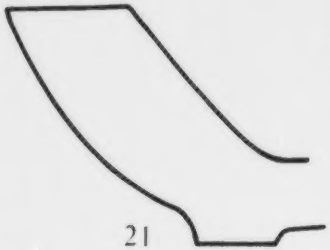

16

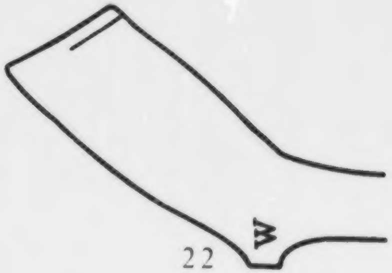

17


18
ca.1660-80

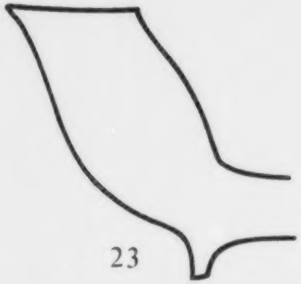

19
ca.1690-1710

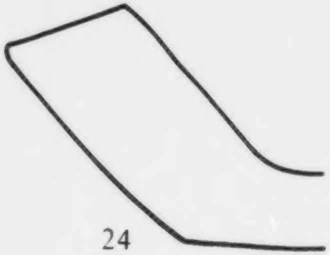

20
ca.1680-1710

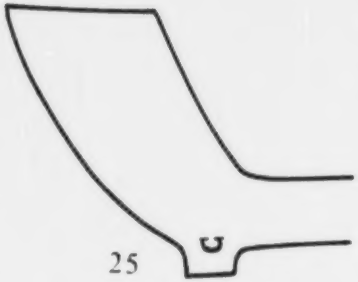

21
ca.1680-1710



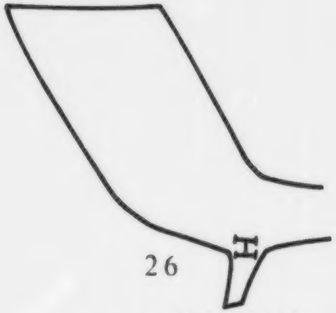
22
ca.1680-1710


23
ca.1690-1720


24
ca.1700-40



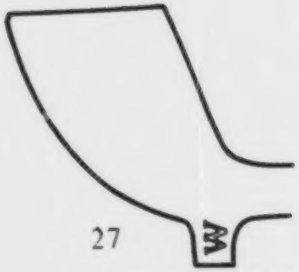
25
ca.1700-1770

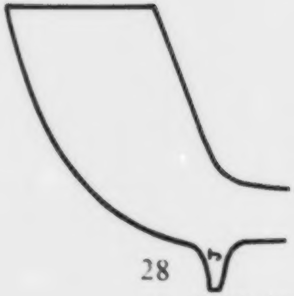


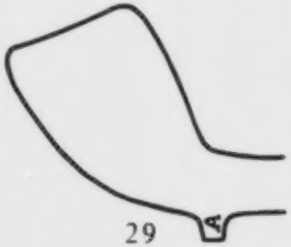
26
ca.1740-1800

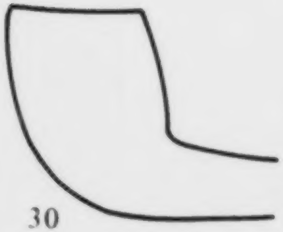
FIG 4c

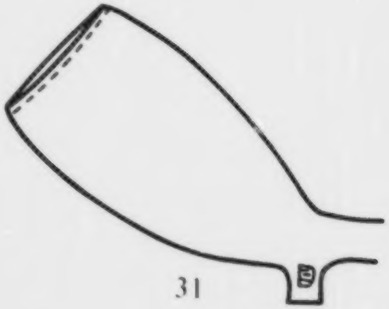
Typology of pipes found in London (from Atkinson and Oswald 1969: 178 fig 1 and 180 fig 2) (continued).

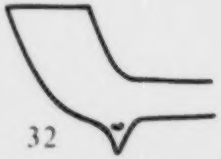

27
ca.1780-1820


28
ca.1820-40


29
ca.1840-80


30
ca.1850-1910


31
ca.1850-1910


32
ca.1840

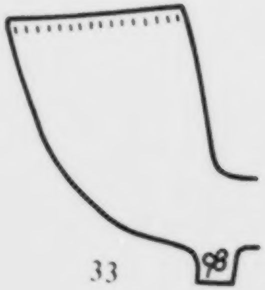
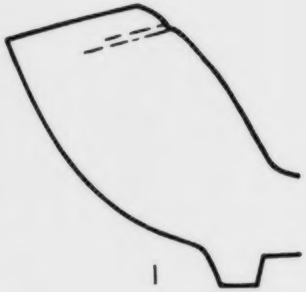

33
post-1840

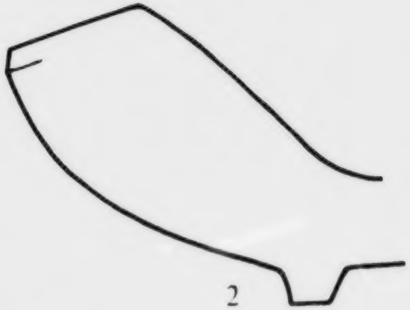
FIG 5a

Typology of pipes produced in NE England (from Parsons 1964: 236 fig 1).



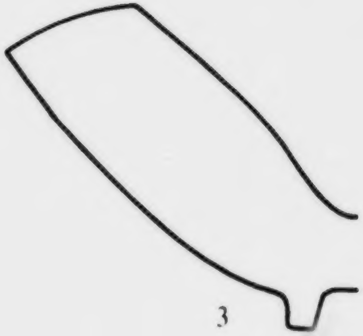
1

1650-80



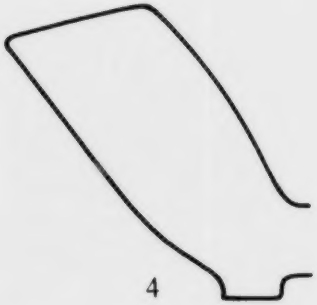
2

1670-90



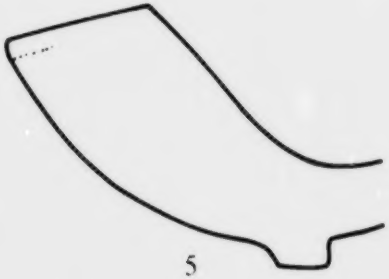
3

1680-90



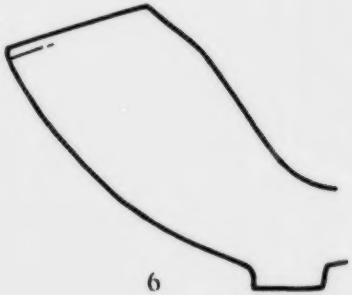
4

1680-1720



5

1680-1720

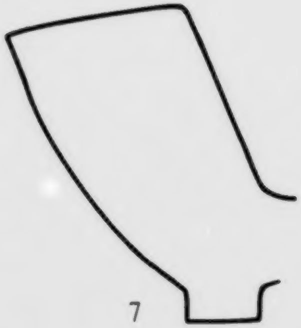


6

1680-1720

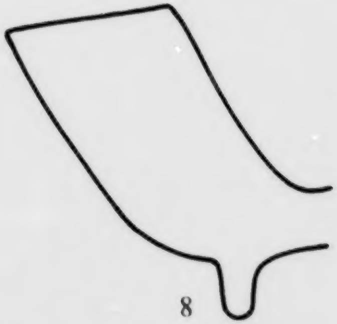
FIG 5b

Typology of pipes produced in NE England (from Parsons 1964: 236 fig 1) (continued).



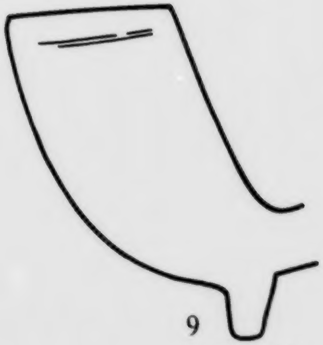
7

1710-50



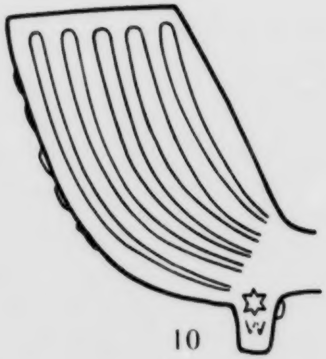
8

1700-80



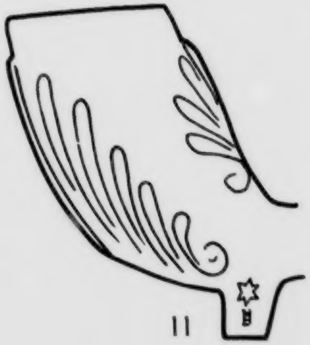
9

1700-80



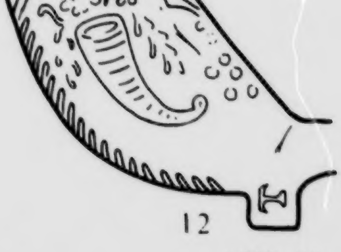
10

1780-1840



11

1780-1840

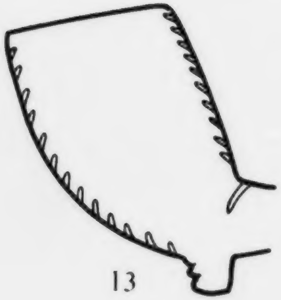


12

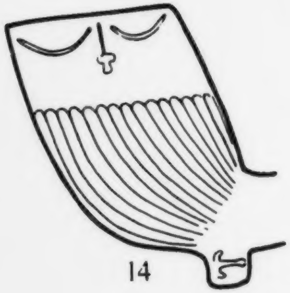
1800-50

FIG 5c

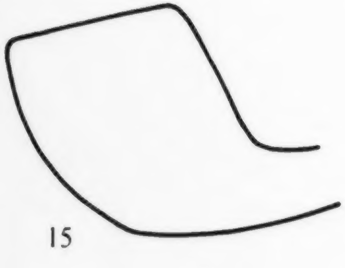
Typology of pipes produced in NE England (from Parsons 1964: 236 fig 1) (continued).
18,19 and 20 are York Bulbous types.


13

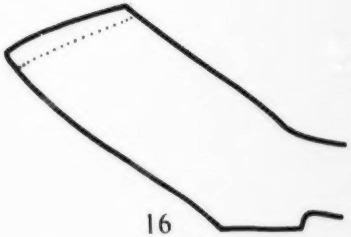
1820-60


14

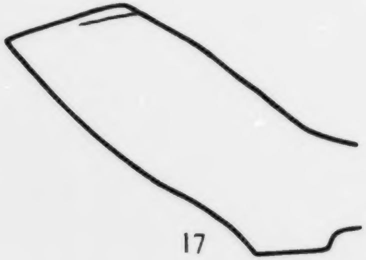
1820-60


15

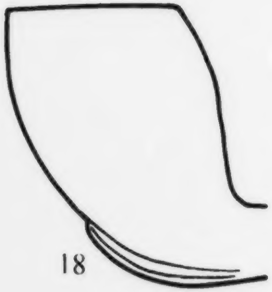
1840-


16

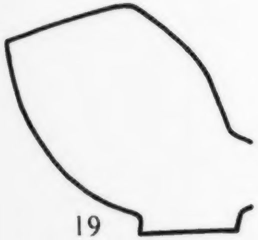
1680-1720


17

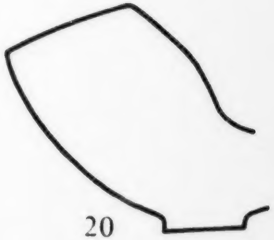
1690-1740


18

1840+


19

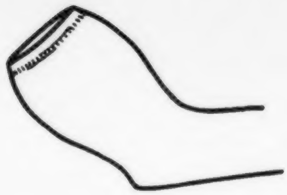
1650-90


20

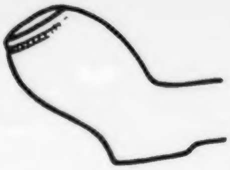
1650-90

FIG 6a-1

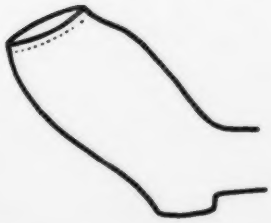
Typology of pipes, mostly English, found in Colonial and post-Colonial eastern United States (from I. Noël Hume 1963: 262 fig 105).



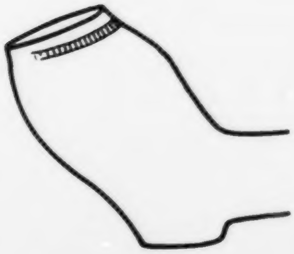
1580-1630



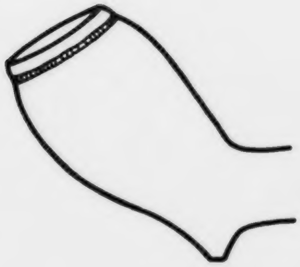
1600-40



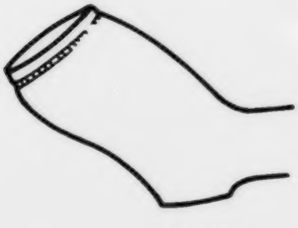
1630-70



1640-70



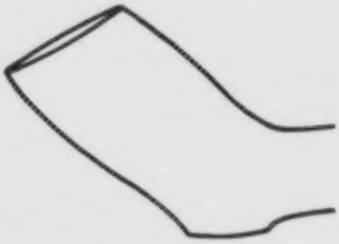
1650-80



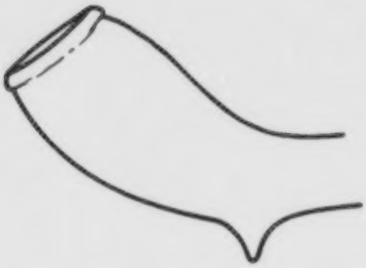
1650-80

FIG 6a-2

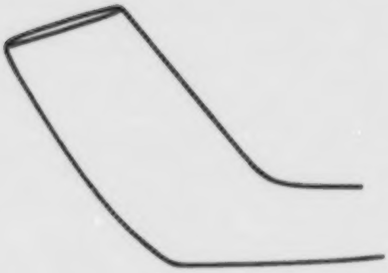
Typology of pipes, mostly English, found in Colonial and post-Colonial eastern United States (from I. Noël Hume 1963: 262 fig 105) (continued).



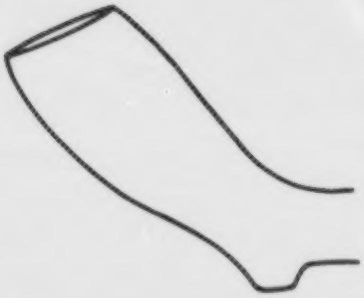
1660-90



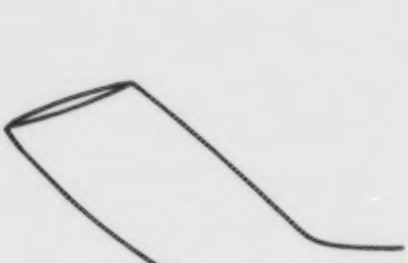
1660-90



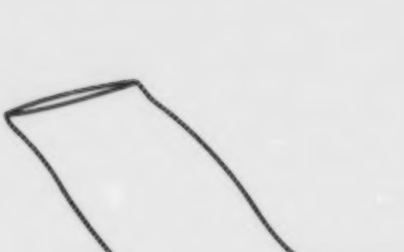
1690-1720



1680-1710



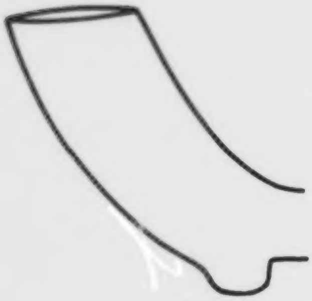
1680-1710



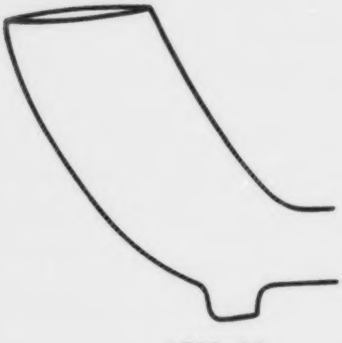
1680-1740

FIG 6a-3

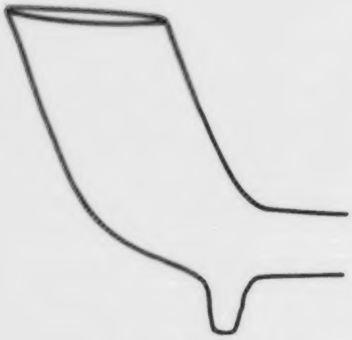
Typology of pipes, mostly English, found in Colonial and post-Colonial eastern United States (from I. Noël Hume 1963: 262 fig 105) (continued).



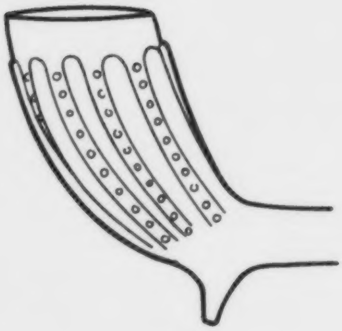
1700-30



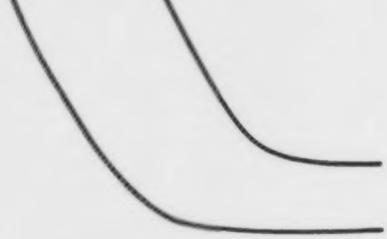
1720-80



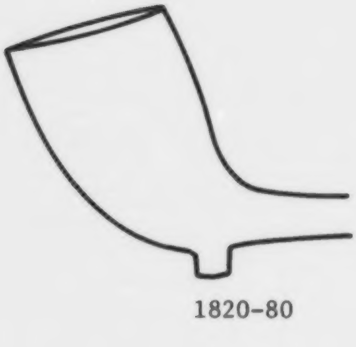
1720-80



1780-1820



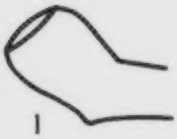
1720-80



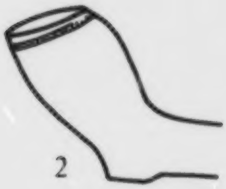
1820-80

FIG 6b-1

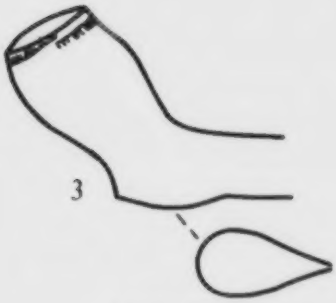
Topology of pipes, mostly English, found in Colonial and post-Colonial eastern United States (from I. Noël Hume 1970c: 303 with corrections from author).


1

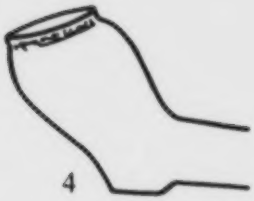
1580-1620


2

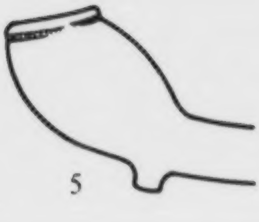
1600-40

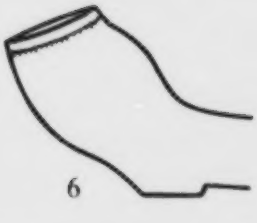

3

1610-40

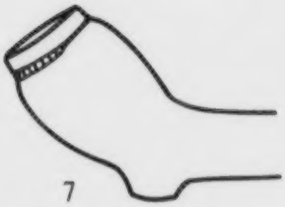

4

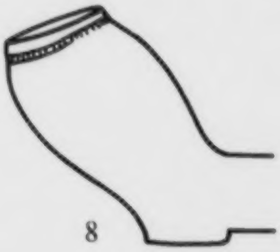
1620-60


5


6

1620-60

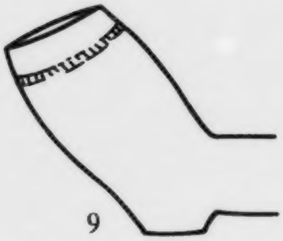

7


8

1645-65

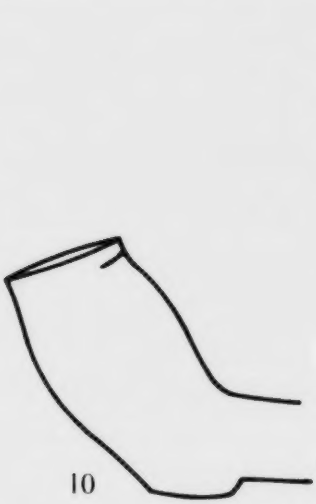
FIG 6b-2

Topology of pipes, mostly English, found in Colonial and post-Colonial eastern United States (from I. Noël Hume 1970c: 303 with corrections from author) (continued).



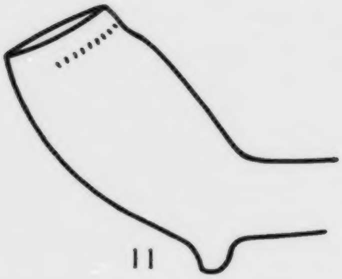
9

1645-65

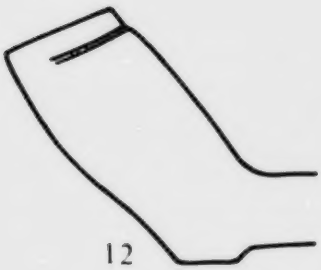


10

1650-80

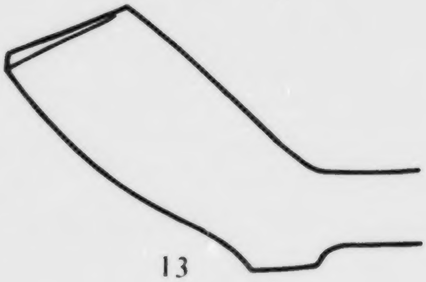


11

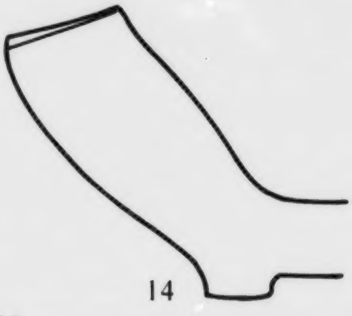


12

1650-80

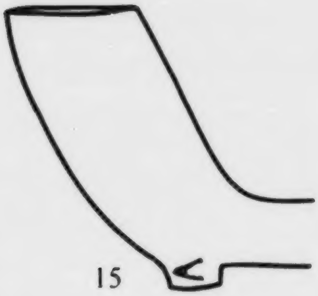


13



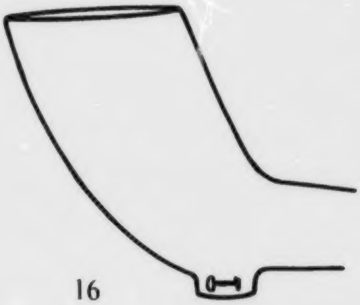
14

1680-1710



15

1700-70

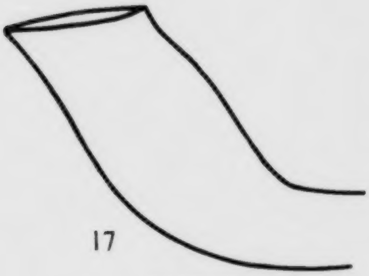


16

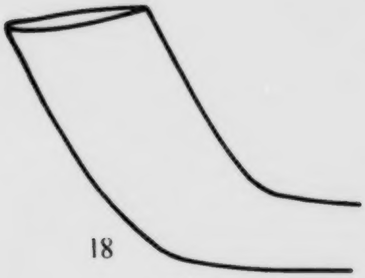
1730-90

FIG 6b-3

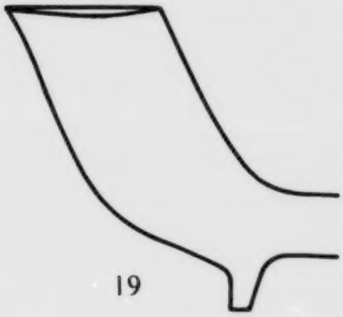
Typology of pipes, mostly English, found in Colonial and post-Colonial eastern United States (from I. Noël Hume 1970c: 303 with corrections from author) (continued).


17

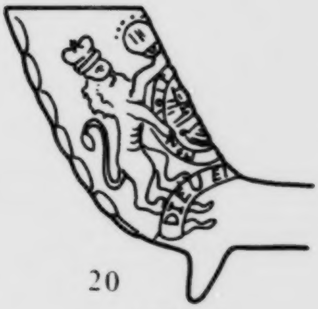
1680-1710


18

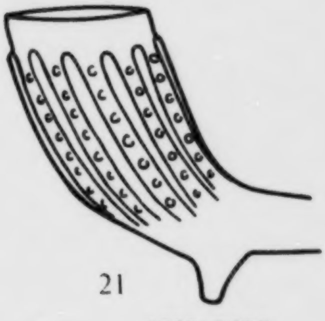
1720-1820


19

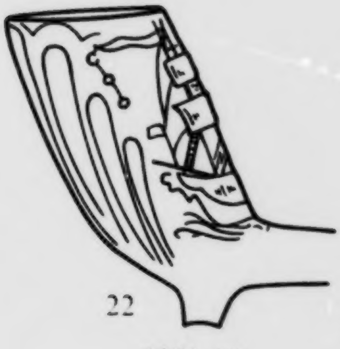
1690-1750


20

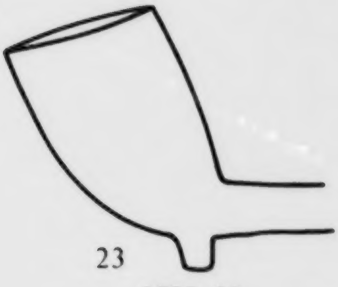
1730-70


21

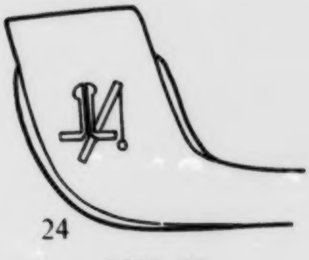
1780-1820


22

1800-30


23

1820-60


24

1830-60

FIG 7

Histogram indicating the change through time of bore-diameters of clay-pipe stems (from I. Noël Hume 1970c: 298 fig 96, after Harrington 1954: 5th page).

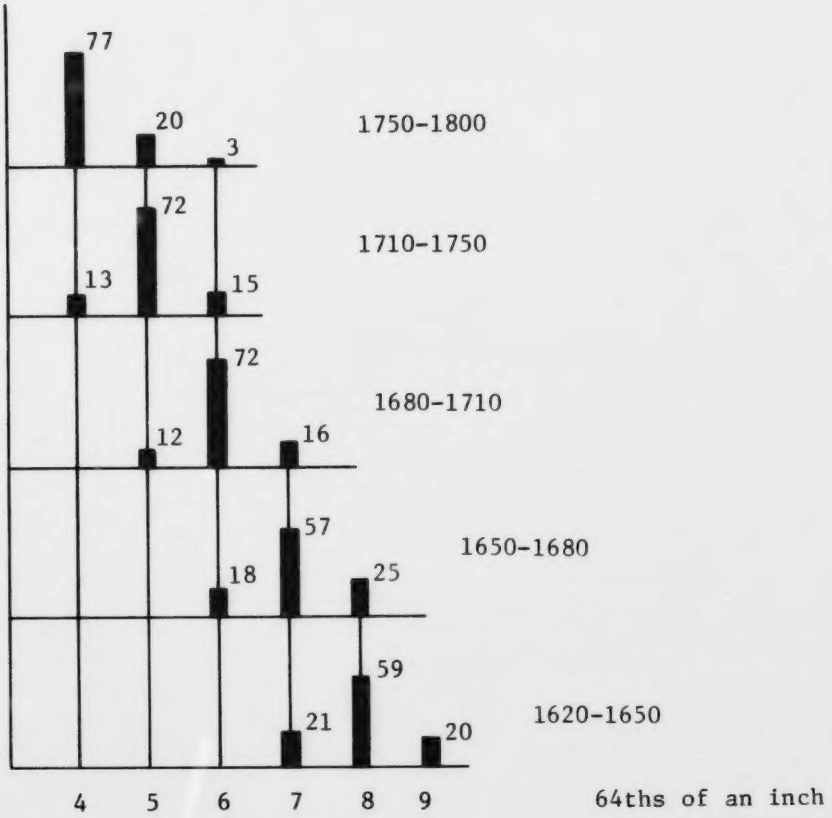

77
20
3
1750-1800
72
1710-1750
13
15
72
1680-1710
12
16
57
1650-1680
18
25
59
21
20
1620-1650
4
5
6
7
8
9
64ths of an inch

FIG 8

8a McDougall of Glasgow's Woodstock Pipe. The stem mark on the side shown here reads WOODSTOCK PIPE; the reverse side reads McDOUGALL preceded by the mould-number 50. The price for this pipe in 1900 was 8½d a gross (Anonymous 1900: 6) about average for the normal run of pipe-types listed (National Historic Parks and Sites Branch, Ottawa).

8b Illustration from undated catalogue of the American Clay Pipe Works of New York City (Anonymous n.d. (11): 15) showing three styles of Woodstock pipe produced by that firm: a Heavy Woodstock (centre), a Small Woodstock (2nd from btm), and a Large Woodstock (btm). Scale approx. 1:2.

8c Medium Woodstock brier pipe, model number 211 produced by Brigham Pipes Ltd of Toronto, Canada (National Historic Parks and Sites Branch, Ottawa).

CM
IN

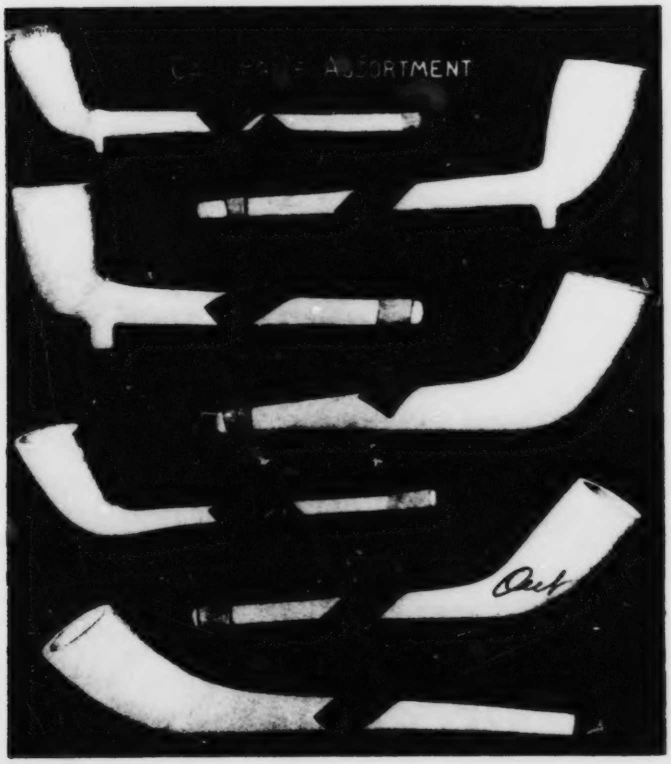
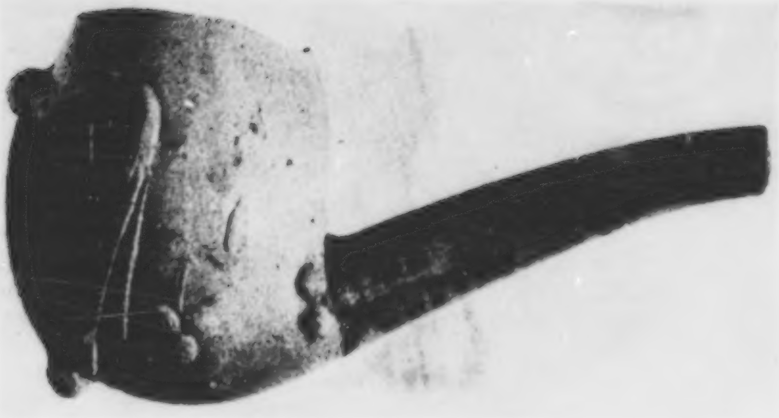

ASSORTMENT
Oct

FIG 9

White of Glasgow's "Bent Harp" pipe. The stem-mark on the side shown here reads W. WHITE preceded by the mould-number 68; the reverse side reads GLASGOW. The 1900 price-list of Scottish-made pipes (Anonymous 1900: 19) indicates this pipe cost 8½d a gross, about average for the normal run of pipe-types appearing in this price-list (National Historic Parks and Sites Branch, Ottawa).

FIG 10

Stem-fragment marked J 73 W. WHITE (the reverse reads GLASGOW). White's type 73 is identified in the 1900 price-list of Scottish-made pipes (Anonymous 1900: 19) as "Plain and Carved Cutties"; the letter preceding the number on this stem presumably refers to a variety within this type-number. In 1900 this pipe cost 7¼d a gross, the cheapest price for pipes listed (National Historic Parks and Sites Branch, Ottawa).



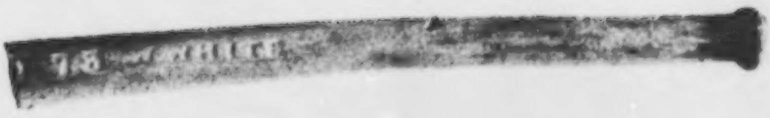

WHITE

FIG 11

Upper: pipe from Bristol in Blaise Castle Folk Museum, Bristol, probably datable to early in second half of C17. Bowl decorated with Tudor Roses. Scale 1:1.

Lower: virtually-complete Sir Walter Ralegh pipe, almost certainly Dutch, from Pritchard Collection, Blaise Castle Museum, Bristol. The date 1683 is visible on the stem below the decoration and crocodile's body; the word JONAS (the N and S retrograde) appears on the opposite side (City Museum, Bristol). Scale 1:1.

FIG 12

FIGS 12-15 are from Duhamel du Monceau's C18 treatise on pipemaking, *L'Art de faire les pipes à fumer le tabac*, and illustrate tools and processes used in the trade in northern France.)

a) *maillet de bois* - wooden mallet, for initial breaking-up of clay;
b) *mandes* or *mannes d'osier* - wicker baskets, which are cloth-lined and used for carrying clay;
c) *barreau* - bar, used to beat out clay on bench (see o) below);
d) *barreau* in cross-section;
e) *étampe* or *dame* - rammer, used in working clay in second of three tubs (see l)-n) below);
f) *louchet* or *palette* - spade-like tool used to work clay and move it from one tub to the next (see l)-n) below) during the pugging process;
g) *battoir* - club, used for beating clay in third tub and in working it into blocks;
h) *razette* - scraper, used for cleaning clay off the *étampe* or *dame* and from the bench.
i) *razette* in cross-section;
j) *écumette* - skimmer, used to clear impurities from surface of liquid clay in the first tub;
k) *brosse de crin* - horsehair brush, used to sweep bench before beating out the clay;
l),m), and n) tubs used to work clay in: clay is soaked in first one and impurities removed with the *écumette*, mixed with the *scraabes* (spew) and worked with the *louchet* or *palette* and the *étampe* or *dame* in the second, and beaten with the *battoir* (the process being known as to *scaabter*) in the third;
o) bench used for beating out clay from the third tub with the *barreau*;
p) *piqueron* - cylinder of wood with conical ends at Tournai (modern Belgium) used instead of the *battoir* (Duhamel du Monceau 1771: pl V).

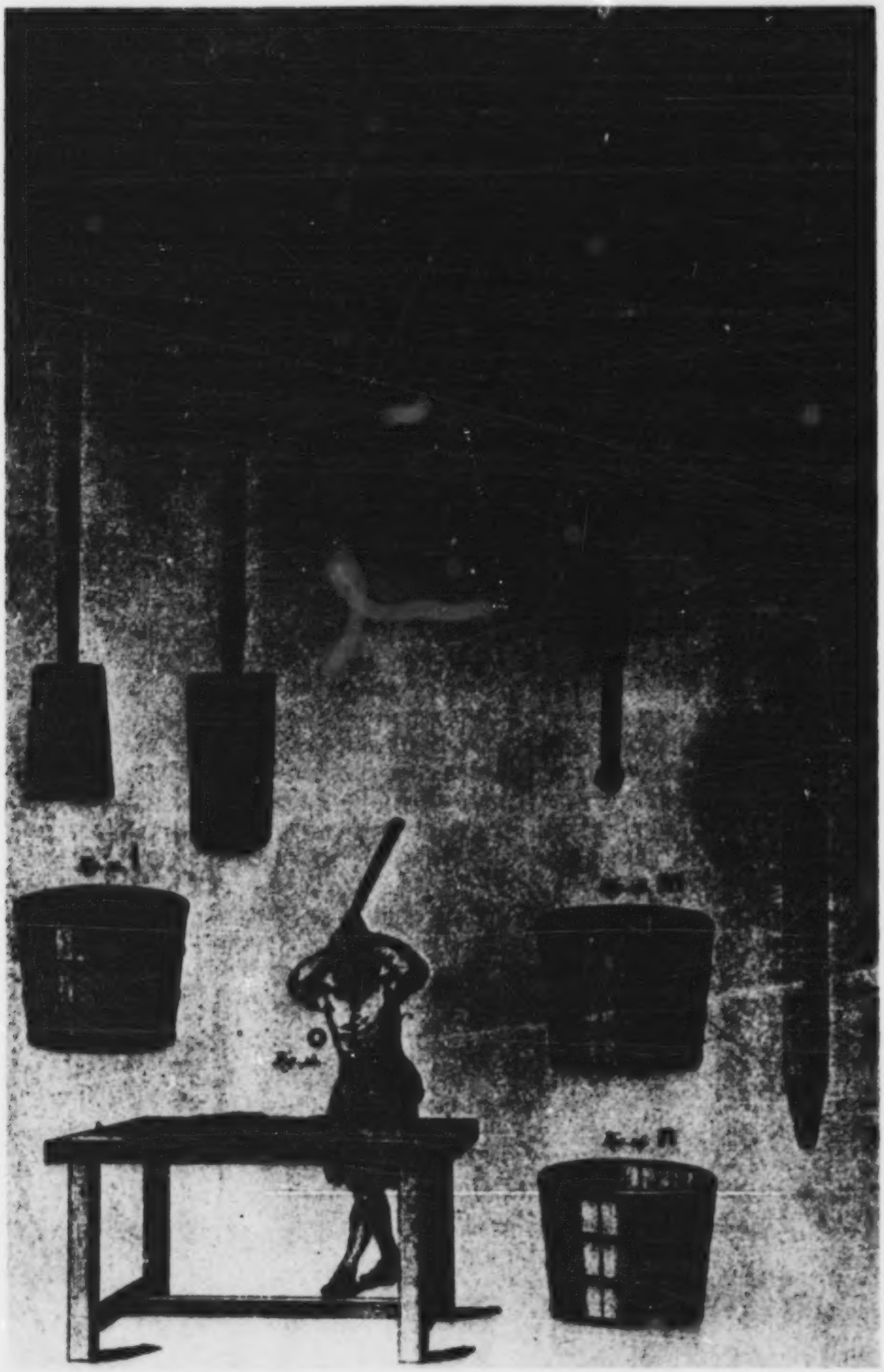


FIG 13

a) block of prepared clay, weighing 80-100 lb, from which the rouleur made the rolls;
b) rouleau - roll;
c) pipemaker's dozen of 15 rolls stacked pyramid-fashion in layers of 6, 5, and 4;
d) wired roll ready for placing in mould;
e) broche de fer - wire (literally, iron wire);
f) wired roll in mould;
g) moule - mould, made of copper;
h) workbench with chest attached holding wired pipe with stopper in mould mouth;
i) the chest, comprising a base and two sides of heavy cast-iron with two plates placed inside, one of polished iron and the other of wood;
j) side-view of the chest attached to the bench and holding mould - the chest is closed by the threaded handle on right (shown also immediately below, labelled "H") which fits into the socket "I", also shown below, which is attached to the inside of one of the chest sides;
k) étampeux - stopper, inserted into bowl mouth by hand and turned to form the bowl, the mouleur (moulder) having first spread clay from the roll as it lies in the mould round the bowl sides of the mould;
l) moulded pipe after removal from mould, still with the wire in it;
m) estriqueux - trimmer, a specialized tool comprising a handle with a hook ("R" in illustration) for trimming and smoothing the moulded pipe, a curved point ("T" in the illustration) for removing the dottle or pep inside the bowl left by the wire's coming through the stem and into the bowl, and set on an arm obliquely to the handle a copper blade ("P" in illustration) to trim off excess clay on the stem;
n) pipes set out to stove after the moulding and trimming outlined above have been finished;
o) bouton -button, made of copper or horn, set over bowl mouth and turned to smooth off bowl lip;
p) pipes set out for further stoving after additional trimming with a knife and with the button;
q) described in text as screws and nuts used to close the chest firmly - where precisely they fit in j) is not clear, though they look like the screw shown holding chest to bench in that illustration (Duhamel du Monceau 1771: pl. V1).

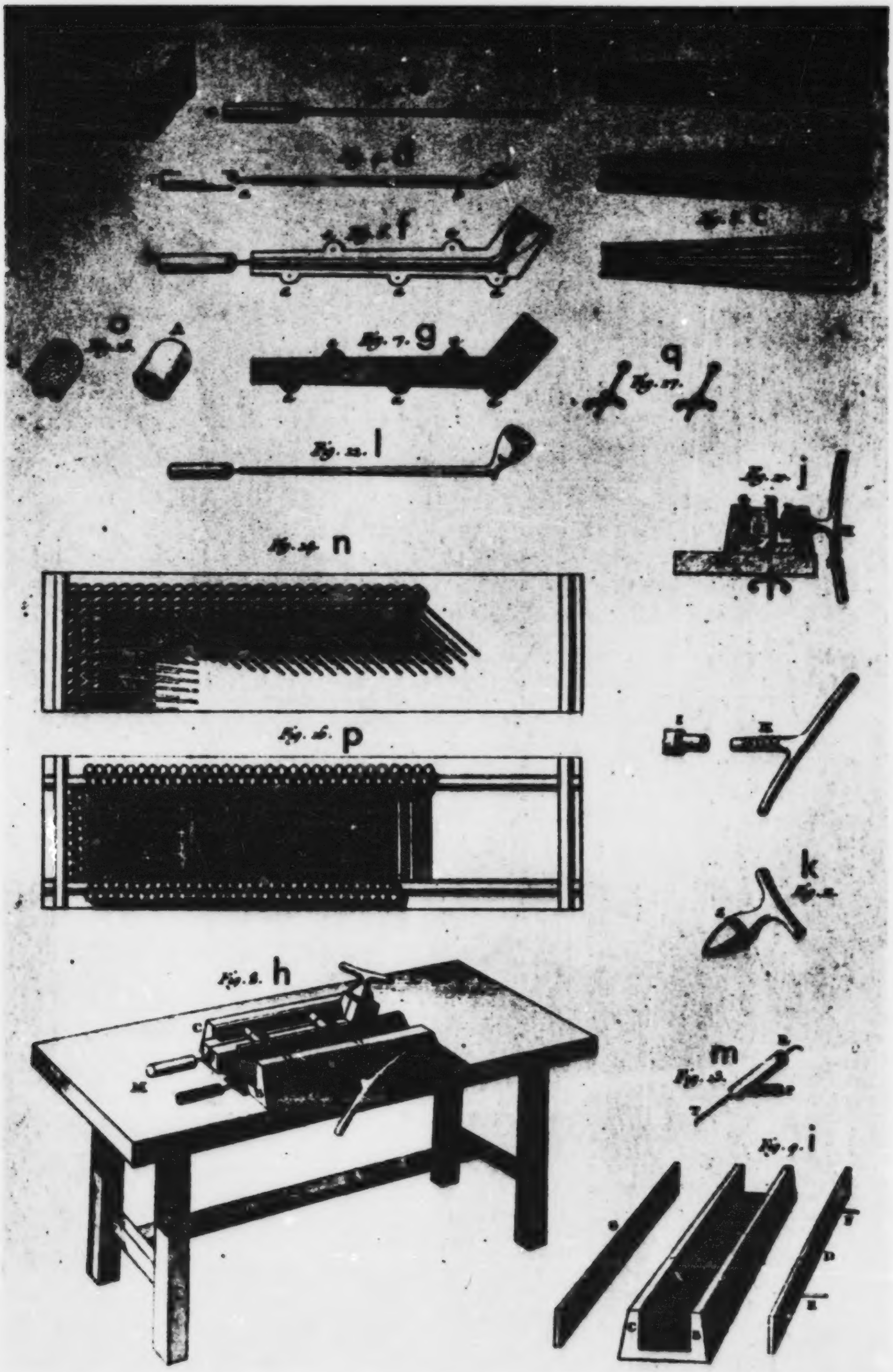

d
f
c
o
Fig. 7. g
q
l
j
n
p
k
Fig. 8. h
m
Fig. 9. i

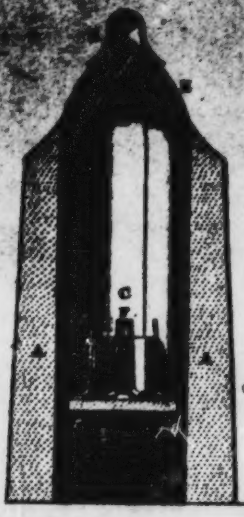
FIG 14

r) vertical cross-section of muffle-kiln of the type used for pipe-making at Rouen. The pipes were stacked almost vertically round a chandelier or fuseau ("F" in the illustration), a hollow clay tube with grooves on it to hold the stems which were fitted over a vertical iron shaft; several of these chandeliers were placed thus one above the other. The first three or four tiers of pipes were stacked bowls down, the next three or four stems down, and so on alternately. The pipes were held in place by boisseaux (literally, bushels), bottomless saggars which were stacked up round the chandelier (one is shown but not designated by letter in the illustration);

s) horizontal half-cross-section of the above kiln, showing the heat ducts in the wall adjacent to the muffle, in which latter is shown part of a boisseau;

w) vertical cross-section of a large up-draught kiln used for firing pipes. The pipes were stacked round a chandelier as in the description above similarly encased in boisseaux ("G1" and "G2" in the illustration). This particular type of kiln could hold nine staunches of saggars (see FIG 15, v);

y) exterior view of same kiln as in w above (Duhamel du Monceau 1771: pl X1).



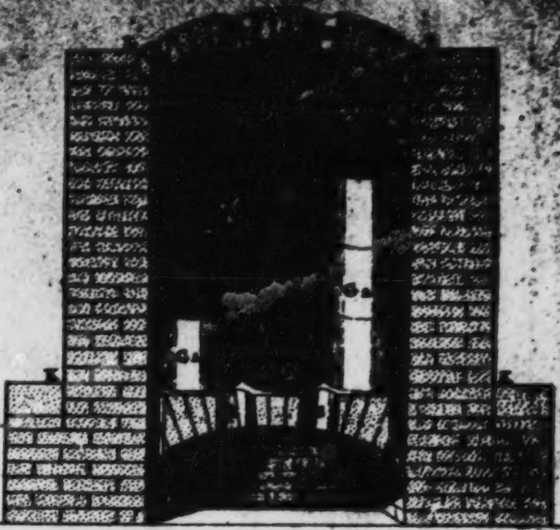


Fig. 22. S

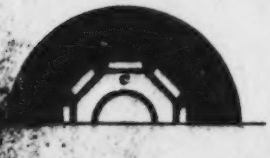
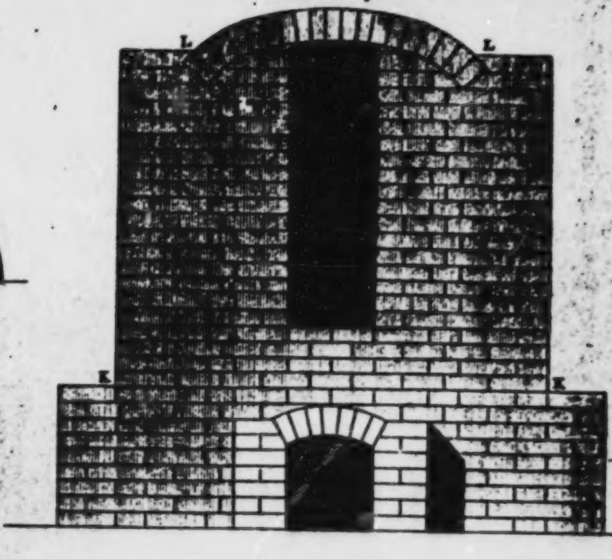


Fig. 23. Y



Echelle de 1 2 3 4 5 Pieds

FIG 15

t) exterior view of muffle-kiln shown in FIG 14, r;
u) horizontal cross-section of same kiln as above, taken through the firebox at the base;
v) horizontal cross-section through kiln shown in FIG 14, w and y, showing arrangements of staunches of saggars;
x) horizontal cross-section of same kiln, taken through firebox at base (Duhamel du Monceau 1771: pl X).

Fig. [illegible] T

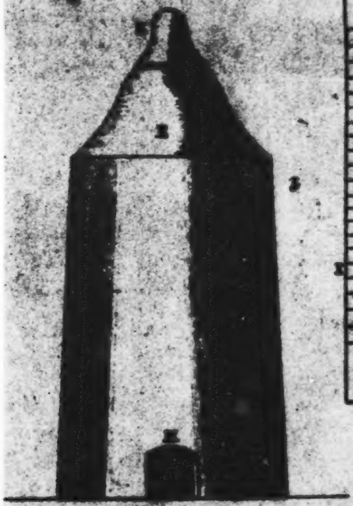


Fig. 24. V

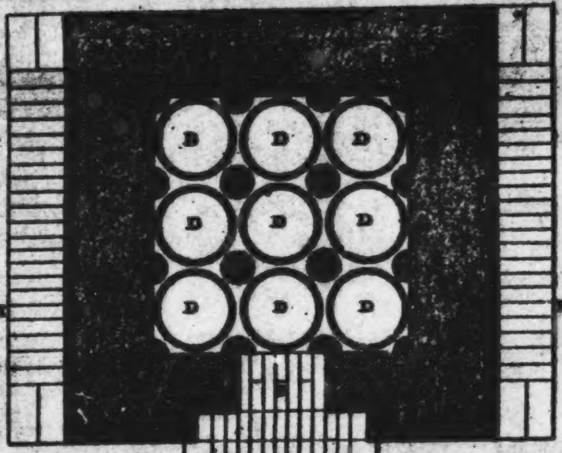

D
D
D
D
D
D
D
D
D
E
E

Fig. 19. U

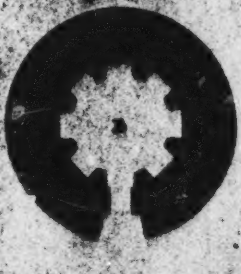
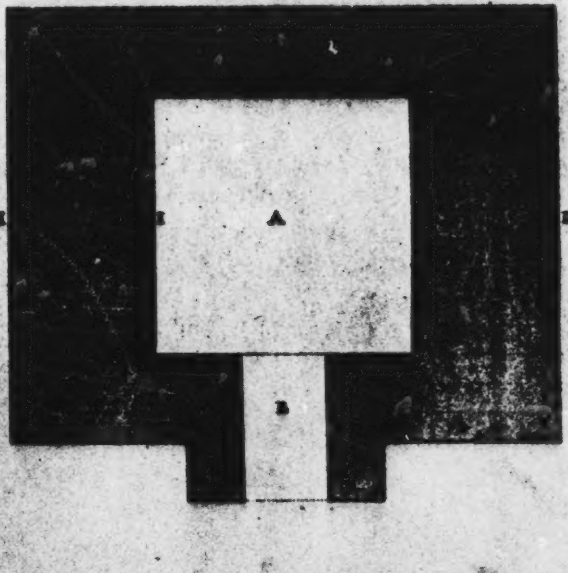


Fig. 22. X


E
E
A
E
B

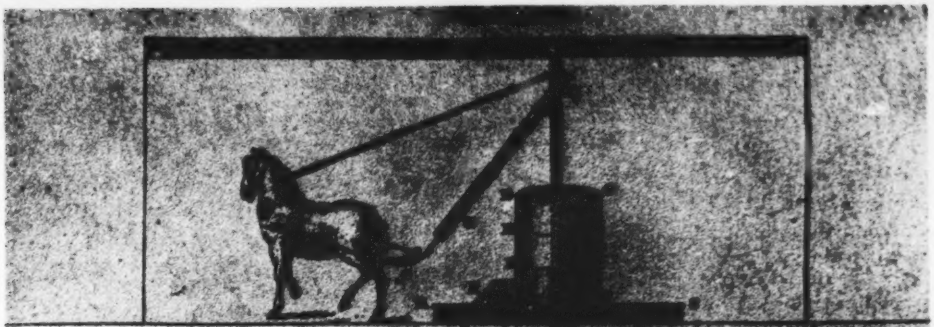
Echelle de 1 2 3 4 5 6 Pieds

FIG 16

(FIGS 16-18 are from Duhamel du Monceau's C18 treatise on pipemaking *L'Art de faire les pipes â fumer le tabac*, and illustrate tools and processes used in the trade in The Netherlands.)

a),b), and c) horse-driven pug mill used to prepare the clay;
d) roll (*rol*)*;
e) bunch of two dozen rolls stacked pyramid fashion in layers of 9, 8, and 7 (*bosje rollen*);
f) wire (*weijer*);
g) wooden tray attached to workbench to hold the roll while it was being wired (*gootje*) - the illustration also shows the chest (*schroef*) in section (Duhamel du Moneau 1771: pl VII).

* Duhamel du Monceau wrote in French, and while giving French technical terms in his account of pipemaking in France (cf FIGS 12-15) did not attempt to give Dutch technical terms when describing pipemaking in The Netherlands. The Dutch terms given here in brackets are taken from this writer's account of modern Dutch pipemaking (cf FIGS 21-41).



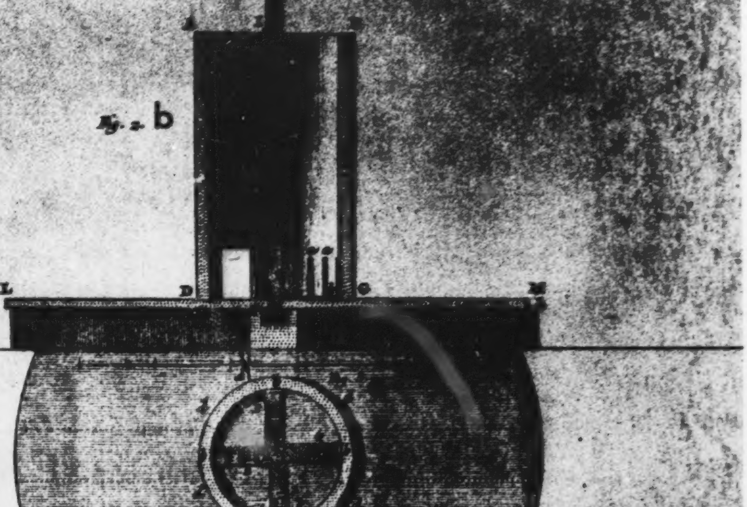


Fig. 2. b

Fig. 4. d

Fig. 5. e

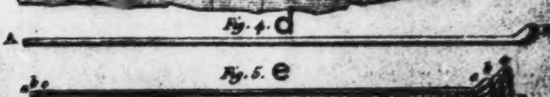


Fig. 6. f

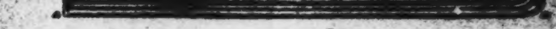


Fig. 7. g

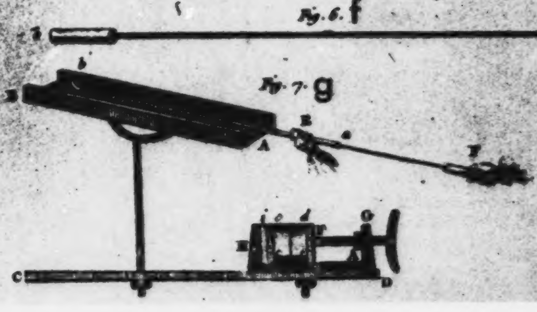

b
B
E
A
a
F
i c d
G
C
D

FIG 17

h) wired roll ready to be put in mould;
i) mould (vorm)*, of brass;
j) workbench with the chest attached;
k) chest (schroef), of the same form as that described used in France (FIG 13,i) except that several sheets of cardboard were placed between the wooden plate and the side of the chest- this was said to prolong the life of the mould, presumably by absorbing some of the shock of the closing of the vice.
l) stopper (stopper) used to make the bowl in the same manner as in France (cf FIG 13, k);
m) specialized tool used by the Dutch to trim their pipes, comprising a wooden handle with a wire hook at one end to trim the stem and a blade set in the side to cut off the end of the stem (schenkertje);
n) knife used in trimming - this comprised a handle with a hook at one end ("D" in the illustration) to remove the dottle or pep from the bowl and a blade at the other end with a semi-circular notch on one side to further trim the stem and a serrated edge on the back to make the denticulation round the rim of the bowl.
o) moulded pipes laid out to stove on a tray;
p) button (botter) used to finish off rim of bowl;
q) trimmed pipes laid out to stove on a tray (Duhamel du Monceau 1771: pl. VIII).

*see footnote to FIG 16.

Fig. 8. h

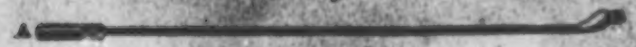


Fig. 9. i

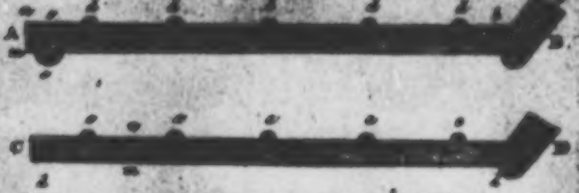


Fig. 10. j

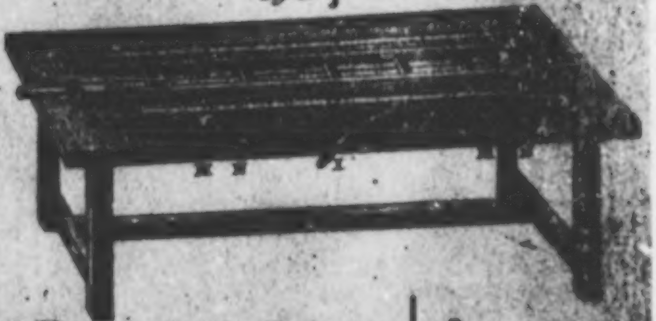


Fig. 11. k

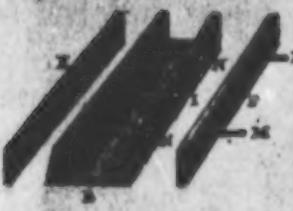


Fig. 12. l

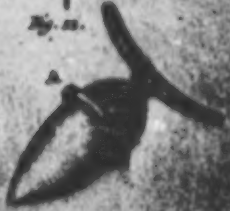


Fig. 13. m

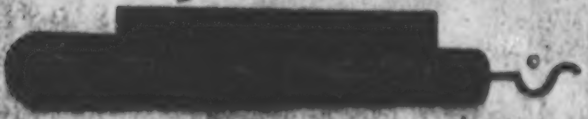


Fig. 14. n

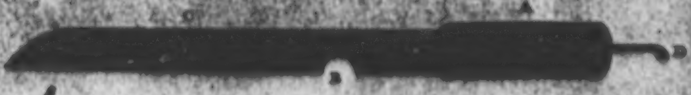


Fig. 15. o

Fig. 16. p

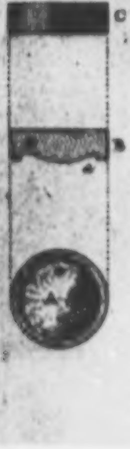


Fig. 17. q

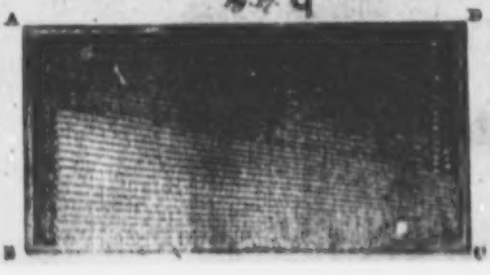


FIG 18

r) smoother (smoier)*, used to polish the bowl;
s) another type of smoother, used to polish the stem - the three differently-sized grooved were to work the various thicknesses of the stem, which in Dutch pipes tapered slightly towards the mouthpieces, this tapering being formed by the mould;
t) handled blade with the maker's name and that of Gouda on the faces and a serrated edge with which to put the denticulation round the stem betweem the names;
u) stamp used to place the maker's mark on the pipe heel;
v) polishing tool (glaaspin - literally, glazing-pin, referred to in a 1750 source as glaas-steen - literally, glazing-stone) - a well-polished pebble, often an agate or flint, shaped into a cone and attached to a wooden handle by a copper ferrule, used to stroke-burnish the pipe bowl (for result see FIG 154 btm centre);
w) saggar (pijpenpot) - elaborate form used at Gouda, the body of the vessel being on three feet and there being a conical cap;
x) vertical section through the above saggar showing the trompette (literally, trumpet), a hollow clay tube with slits in its sides set upright in the saggar into which ground up fired pipeclay (gruis, spelled gruys in 1750 reference) was poured so as to build up round and support the pipes which were to be fired and which were stacked bowl down in the saggar, their stems resting in grooves on the upper part of the trompette;
y) the trompette, showing the slits in the sides through which the ground-up fired pipeclay passed and the grooves on the upper part to hold the stems of the stacked pipes;
dd) exterior profile of kiln used at Gouda to fire pipes - the central opening permits entry into the kiln, the small opening beneath it is one of the three such openings (see ff) below) which are draught holes and serve as access for loading the peat into the circular and cross-shaped passages in the firing-chamber and for lighting the fuel;
ee) vertical cross-section through kiln described above, showing saggars stacked up inside, the flues on the floor, and the air-vents in the kiln sides and roof;
ff) horizontal cross-section of kiln through the firing chamber, showing flues (see description in dd) above);
gg) horizontal cross-section through kiln chamber, showing vents in floor (Duhamel du Monceau 1771: pl IX).

---

* see footnote to FIG 16

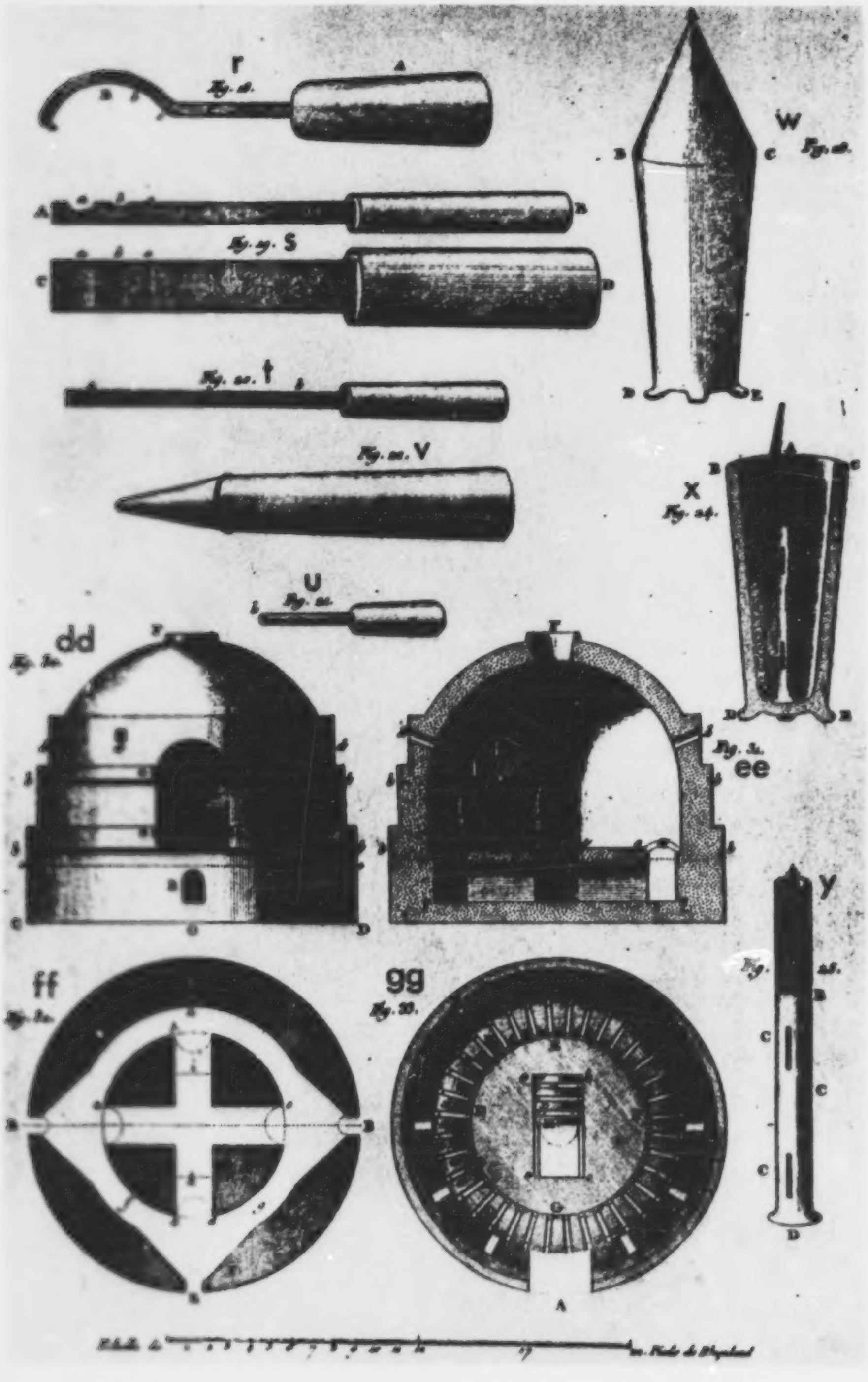
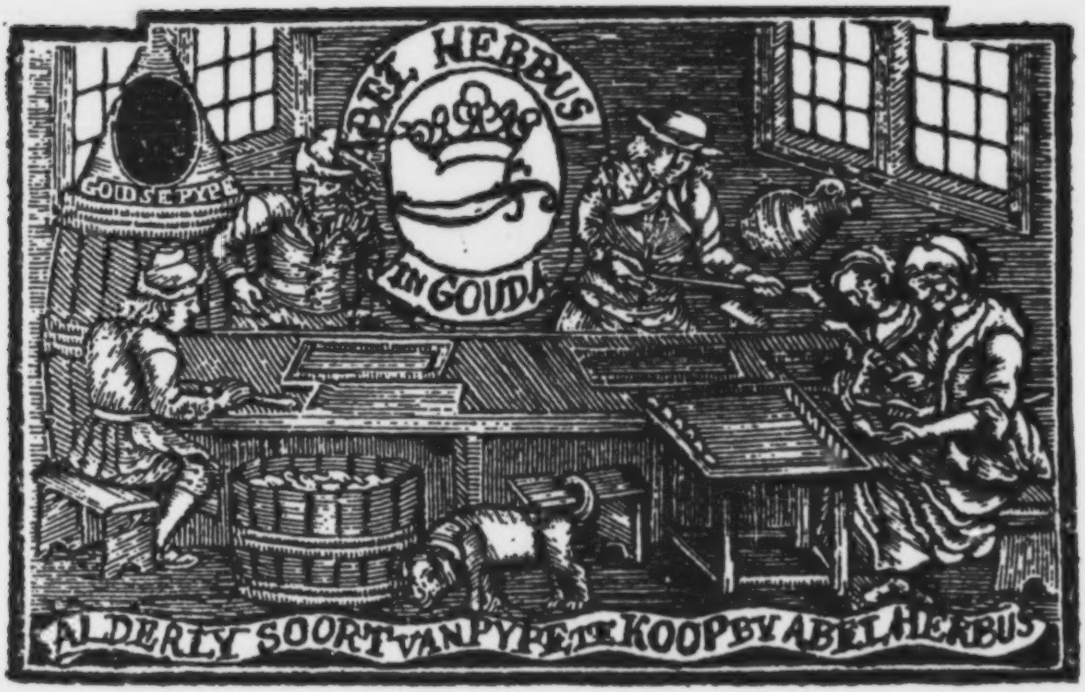

r
s
t
V
U
W
X
Fig. 24.
y
dd
ee
ff
gg
A
B
C
D
E
F

FIG 19

Woodcut illustrating the interior of a Gouda pipemaker's workshop in 1735 (Helbers and Goedewaagen 1942: 129 fig 95).

FIG 20

Woodcut showing methods of packing and carrying Gouda pipes, ordinary-quality pipes being packed in the barrel and best-quality in the wicker basket (Terstraten [1968]: 18)


ABEL HERBUS
IN GOUDA
GOUDSE PYPE
ALDERLY SOORT VAN PYPE TE KOOP BY ABEL HERBUS

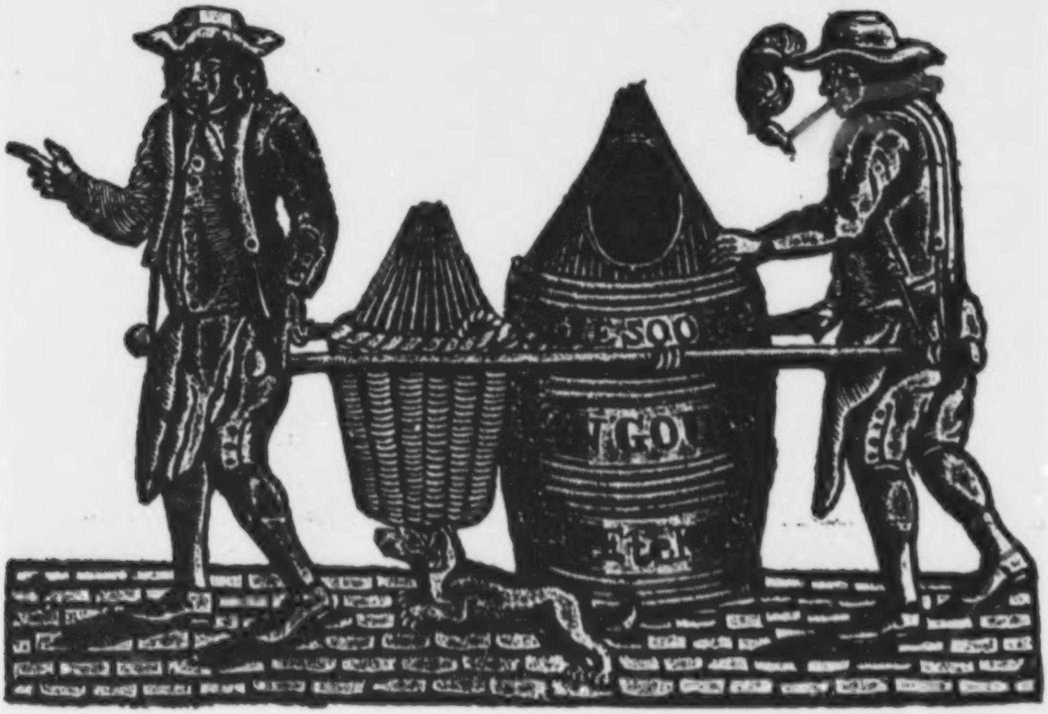

E SOO
TGO

FIG 21

Making the rol (roll) at Van der Want's Zenith Plateelbakkerij en Pijpenfabriek at Gouda, April 1969. The clay is delivered to the rolder (literally roller, but modern British term is moulder) in blocks - at foot of illustration - from which the rolder takes a muis (nip) and proceeds to form the roll on the rollenbank (literally, roll-bench), using first one hand then both. The finished rolls are placed three deep, 18 together, on the paddle-shaped rollenplank (known variously as a bench, dozening board, or bunch board in the British industry) in front of the rolder. The bundle of rolls is known as bosje rollen (literally, roll-bunch).

FIG 22

Bundles of bosjes rollen at the Van der Want factory in Gouda laid on their rollenplanken 18 in a bundle, the three rows comprising seven, six, and five rolls.

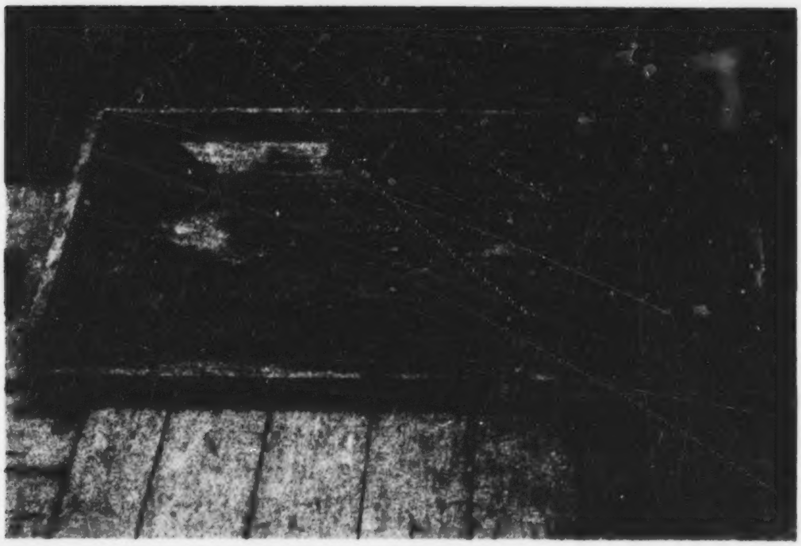


FIG 23

Wiring the roll at the Van der Want factory, the head of the roll being placed in the gootje, a wooden trough which appears to be a specialized tool evolved in The Netherlands for the purpose of holding the roll. At the foot of the illustration lies a bosje rollen on its rollenplank and immediately above them are three stoppers (same word in English, though the tool is of a different form) the instrument used to form the bowl of the pipe (Firma P.J. van der Want Azn Zenith Plateelbakkerij en Pijpenfabrieken, Gouda).

FIG 24

Display of Dutch pipemaking equipment at the Douwe Egberts tea, coffee, and tobacco factory at Utrecht, April 1969. On the bench are (left to rt): the gootje with the weijer (wire - the tool used to make the bore of the pipe) lying on it; the bipartite bronze vorm (mould) and just visible behind it the schroef (chest - the vice to hold the mould); a lump of prepared clay from which the rolls will be made; and a tray containing some partly-formed pipes (left and front); some unmoulded rollen (rt); a stopper (rear); and three botters (buttons - tools for rounding off the rim of the bowl) which are the three dark draught-counter like objects centre and rear. In front of the bench hangs a grooved wooden tray on which moulded pipes are put to "stove" or dry before firing.

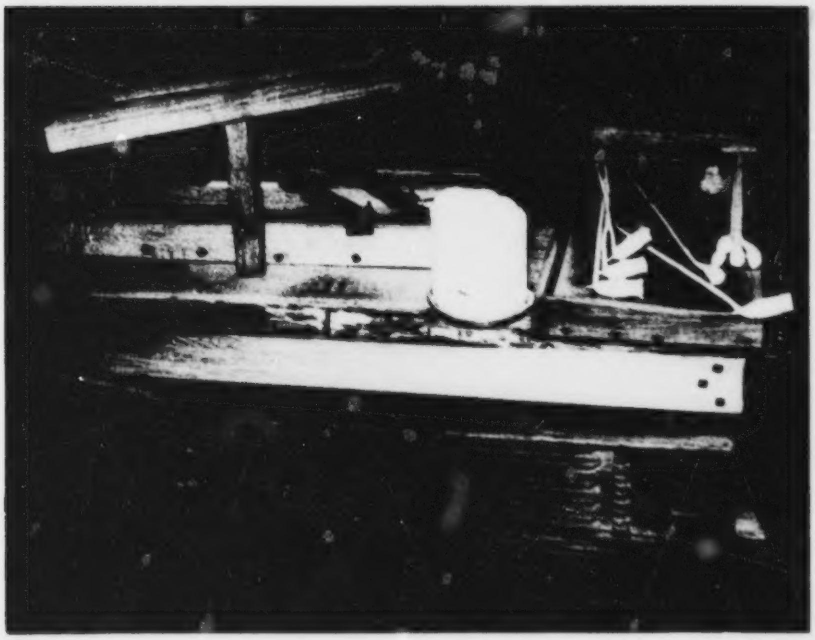
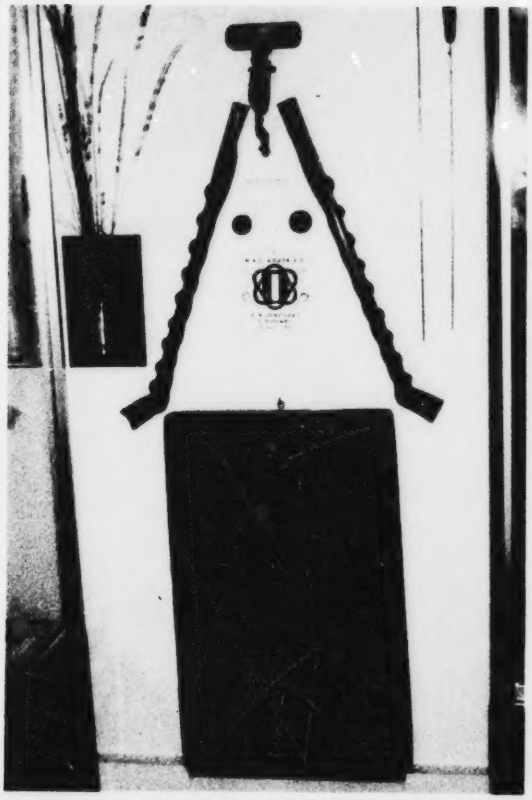


FIG 25

Display of pipemaking equipment and the Van der Want factory at Gouda. At the top is a stopper; below this are the two parts of a bipartite bronze vorm; between these are two botters; to the right are two weijers; and at the foot is a grooved wooden stoving board.

FIG 26

Pipemaking equipment used at the Van der Want factory. In the foreground are three bronze bipartite vormen; on the upper right are a smoier (the larger wooden-handled tool with a sickle-like blade) and a schenkertje (the smaller tool with the blade set in the handle). The box on the right of the row in the background has several botters in it; and the one next to it has more smoiers. The box at the top of the row on the left has a short weijer lying on it.



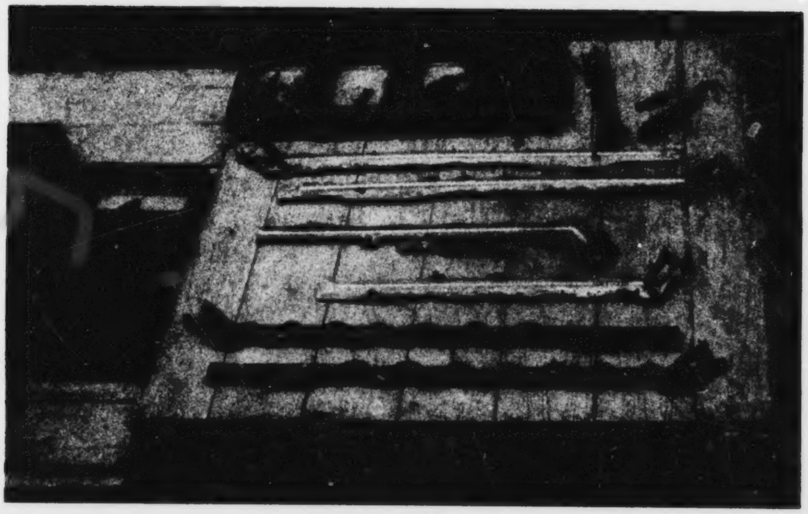


FIG 27

Placing the wired roll in the mould, Van der Want factory.

FIG 28

Preliminary moulding the pipe by clamping the mould in the chest and inserting the thumb into the mould mouth, Van der Want factory.

FIG 29

Forming the bowl by ramming the stopper into the mould mouth, Van der Want factory.

FIG 30

Removing the moulded pipe from the mould, Van der Want factory.

FIG 31

The schenkertje, Van der Want factory.

FIG 32

Trimming off the stem mould-lines with the schenkertje, Van der Want factory.

FIG 33

Trimming off the directie with a paring knife, the pipe stem being held on the shoulder; Van der Want factory.

FIG 34

Trimming off the bowl mould lines with a paring knife, Van der Want factory.

FIG 35

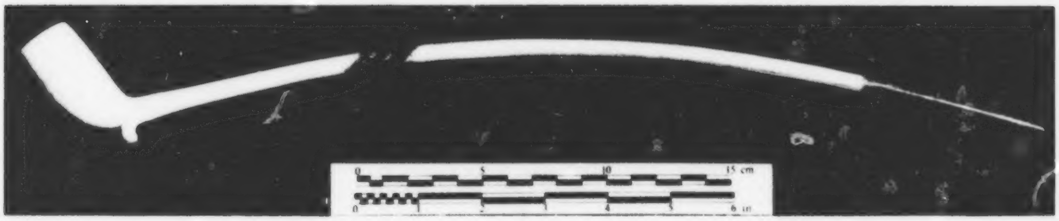
Smoothing off the bowl rim with the botter, Van der Want factory.

FIG 36

A current product of the Van der Want Zenith pipe-factory at Gouda. The paper band round the stem at the pipe's point of balance carries the maker's name and place of work; it replaces the same information formerly impressed on the stem with a small, flat metal plate with embossed inscription. The mouthpiece has a dark brown glaze (National Historic Parks and Sites Branch, Ottawa).

FIG 37

Curved-stemmed pipes being stoved on a corrugated zinc tray at the Van der Want factory. The pipes are laid alternately with bowls hanging over each edge and the stem ends are inserted under loops which occur over alternate grooves. (The pipes illustrated here still have their directie; this was because the pipes available to illustrate the use of the tray were in fact ones from an earlier stage in the manufacturing process, awaiting removal of the directie.)


0
5
10
15 cm
0
1
2
3
4
5
6 in

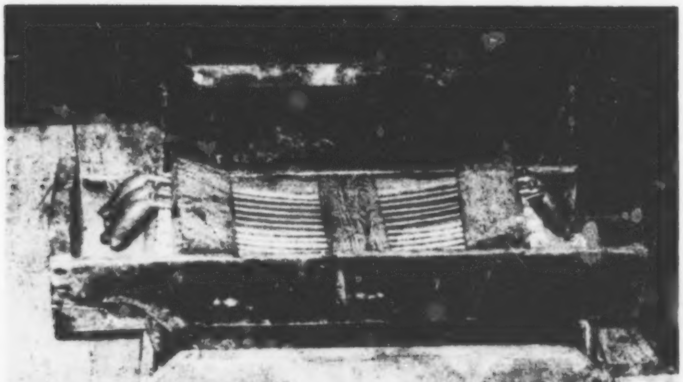
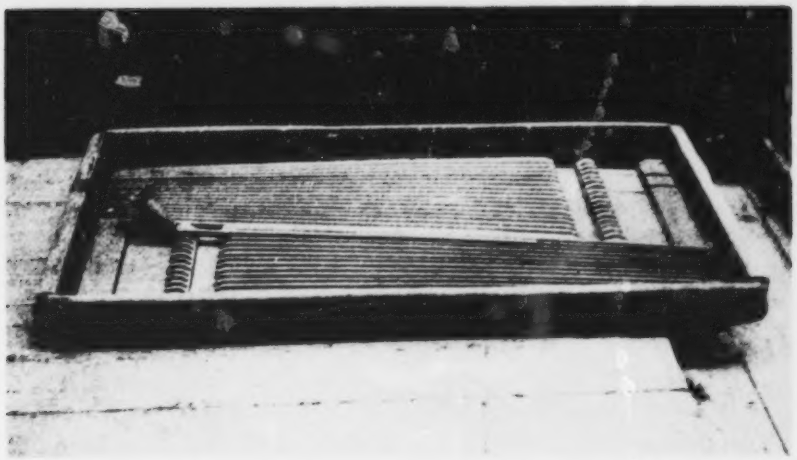


FIG 38

Drying board for stoving straight-stemmed pipes at the Van der Want factory. Pipes are placed in two staggered rows, one in the position shown and the other in front with the heel of the bowl in the smaller of the gaps in the grooved surface, and the tray is divided into two halves, the farther-away part of the tray illustrated taking the bowls at the opposite end from the part in front (the pipe illustrated still has its directie, for the same reason as those in FIG 37).

FIG 39

Modern firing process used for clay pipes at the Van der Want factory, the pipes being laid out on fireclay tile stacks and fired in an electric kiln (Firma P.J. van der Want Azn Zenith Plateelbakkerij en Pijpenfabrieken, Gouda).



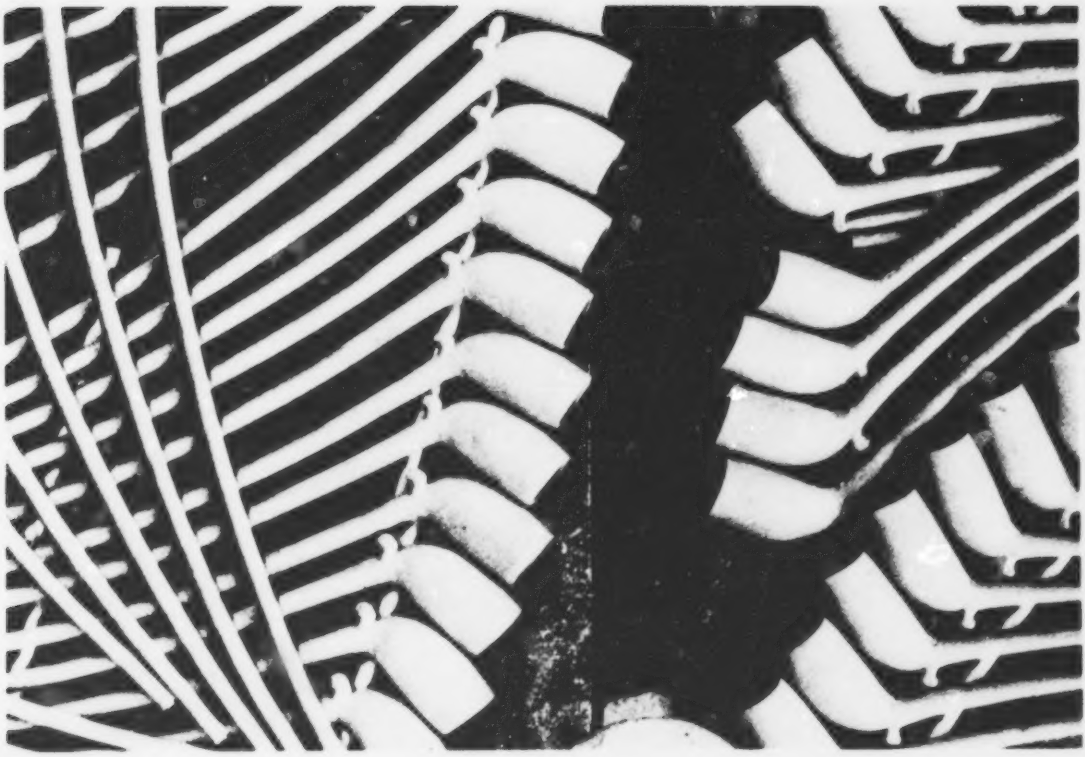
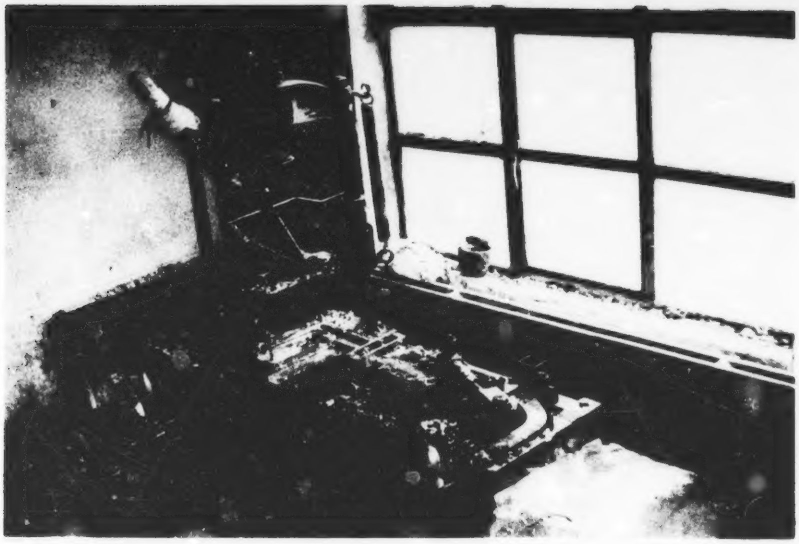


FIG 40

Machine used at the Van der Want factory for rapid production of cheap pipes. The lever at the upper-left - attached to the frame - carries a plate taking the upper half of a one- or two-pipe mould (in this case, for one pipe) and when depressed clamps the plate to the fixed lower half of the mould visible in the illustration. The lever at the lower left pushes in wires (two are visible immediately to the left of the lower mould-plate) into the mould and the lever lower right pushes in the stoppers (not visible in this illustration). (For similar machines in action see FIGS 45-47.)

FIG 41

Plaster models used to produce metal moulds for pipemaking at the Van der Want factory.



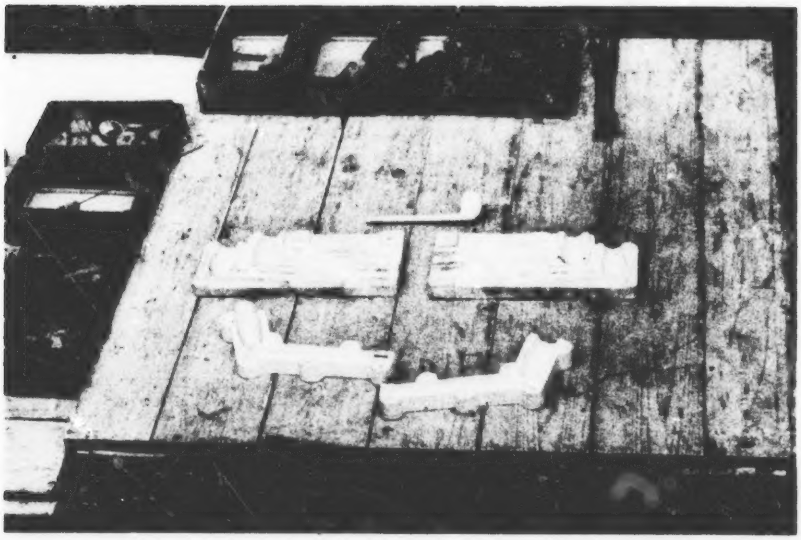
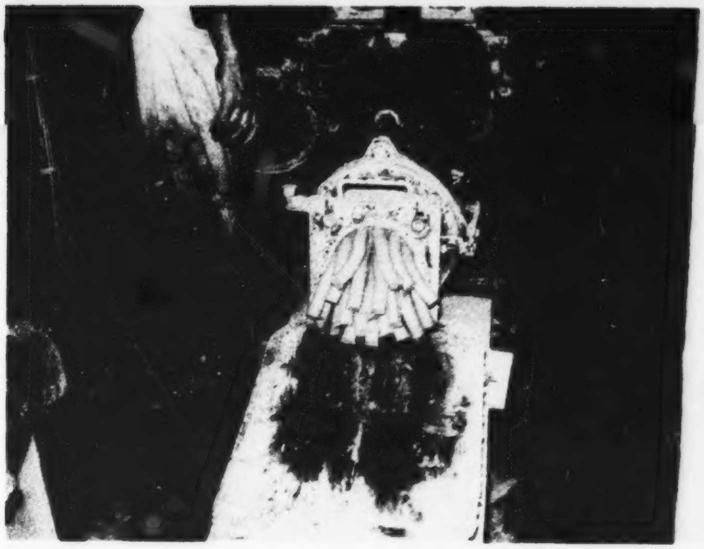


FIG 42

Prepared clay being extruded from a pug-mill in rolls through a metal plate with 21 holes each ca. 3/4 ins wide at the Richard Simonis factory at Hilgert in the Westerwald, April 1969.

FIG 43

Guillotine used at the Richard Simonis factory to cut the extruded rolls of clay taken from the pug-mill into pieces ca. 1¼ ins long ready for moulding. A bundle of extruded rolls is placed on the rollers on the left of the blade, then pushed under the blade in the required lengths.



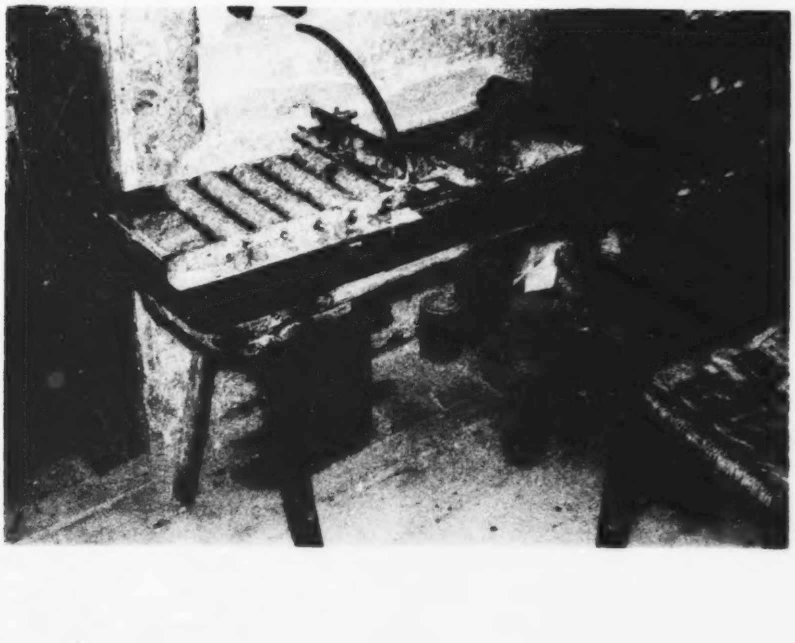


FIG 44

In the foreground on the tray is a piece of the clay rolls extruded from the pug-mill and immediately to the right the piece of clay cut from these rolls by the guillotine and ready for use at the Richard Simonis factory. These latter pieces are piled in the container on the extreme left and oil poured over them. A lump of clay this size forms a pipe the size of those in the background on the tray.

FIG 45

Machine at the Wilhelm Klauer Söhne K.G. at Baumbach in the Westerwald April 1969, similar to that illustrated in FIG 40 used at the Van der Want factory at Gouda. In this case the mould-plate produces two pipes at a time, two freshly-moulded pipes being visible centre with the two wires immediately in front of them and the two stoppers lying horizontally immediately to the right.

FIG 46

Close-up of machine used by Richard Simonis, showing the two parts of the horizontal mould open with the wires, actuated by the lever under the left elbow, visible entering the machine on top of the lower mould-plate. The stoppers are invisible under the right hand.

FIG 47

Machine at Richard Simonis's factory in action. The mould-plates are closed by the vertical lever with the left hand, the stoppers forced home by a horizontal lever with the right hand, and the wires pushed in by the lever under the left wrist of the operator again with his left hand.

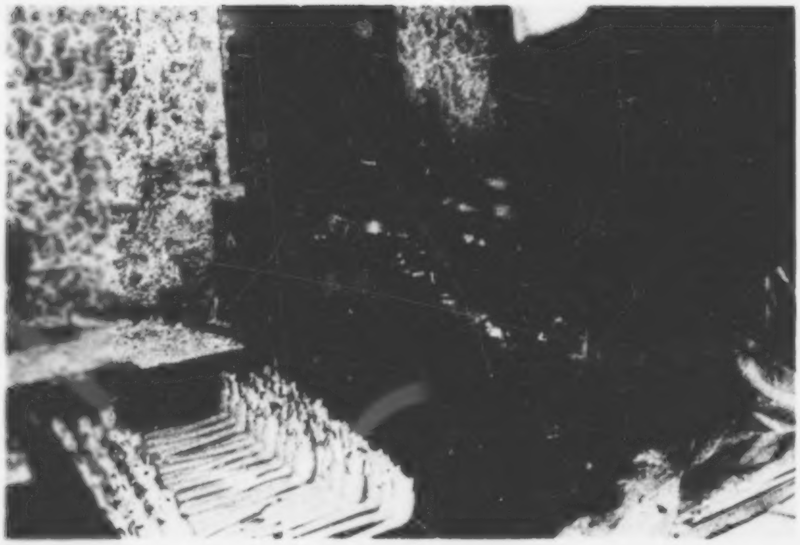


FIG 48

Workbench at Richard Simonis's factory showing in the foreground the Kasten (chest - the vice used to hold the mould) and behind it a Schenker (the object with a blade set in the handle and a hooked wire at one end) and a Stöpfer, the latter similar to the Dutch Stopper except that it has an iron handle instead of a wooden one.

FIG 49

The Trümmerin (trimmer), also known as Abschneiderin or Pfeifputzfrau, using a Trimmesser (finisher's knife), in this case an ordinary paring knife, at the Richard Simonis factory.

FIG 50

Kiln with saggars ready for firing at the Richard Simonis factory. Simonis puts his deep saggars at the foot and his shallow ones at the top of the staunch (cf following illustration).

FIG 51

Kiln with saggars ready for firing at the William Klauer Söhne K.G. factory. Klauer put his shallow saggars at the foot and his deep ones at the top of the staunch (cf preceding illustration) and also used wet clay as a strapping to close the joints between saggars and to plaster the wire reinforcing them.

FIGS 52-53

Mechanically loading a staunch of saggars into the kiln at the Klauer factory.

FIG 54

Staunch of saggars at the Klauer factory unloaded from trolley and being manhandled into position in the kiln.

FIG 55

Firebox of Klauer kiln; firing starts with briquettes but changes for the final hour or two to beechwood.

FIG 56

Simonis workshop and kiln from outside; lean-to full of beechwood built against the kiln.

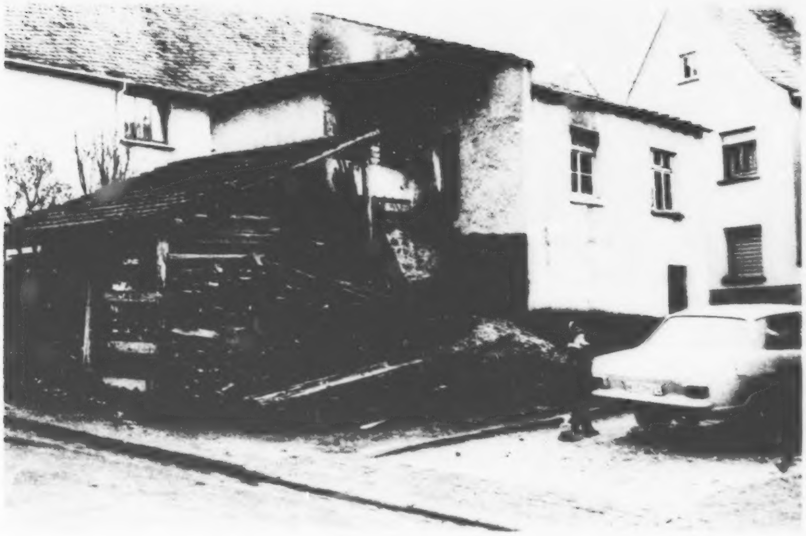


FIG 57

Copy of illustration from Sprengel's Handwerke und Künste in Tabellen, a C18 German encyclopaedia, showing pipemaking equipment used at that time in Brandenburg.

a) The text does not identify this object - it may be a box in which clay was pugged by means of the lever-like object on its right side;
b) the Stopfer (stopper);
c) the Haken (literally, hook), a variant of the Dutch schenker and Westerwald Schenker used to remove the excess clay along the mould-lines when the pipe is taken from the mould;
d) the Messer (literally, knife), a specialized tool comprising a wooden handle, on the base of which is a stamp with the maker's initials which is used to put this mark on the heel of the pipe, and a complex blade which has a blunt back for smoothing the pipe stem and a saw-toothed edge for putting on the denticulation round the mouth of the bowl and which is attached to the handle via a U-shaped loop which is used to smooth the bowl;
e) this depiction is - rather improbably - meant to represent one of the large tubs used for the initial mixing of the clay;
ee) the Schlämmkasten (literally, elutriating box): the liquid clay after it has been mixed in the tubs was poured down the gutter on the left of the illustration and went through a fine hair sieve into the Schlämmkasten, where partitions formed sedimentation tanks which allowed the sand to sink to the bottom, the liquid clay running from one tank to the next;
f) the Pfeifenform (pipe-mould);
g) the Weiserdrath (wire - literally, pointer-wire);
h) the Thonschneide (literally, clay-cutter), used for slicing the clay as part of its preparation before being used by the pipemaker;
i) the bench holding the Schraubenstange (chest - literally, screw-bar) which is attached obscurely at point "a" on the illustration;
j) the Trochenbrett (drying-board);
k) the Brennofen (kiln): the copy from which this figure is taken is a poor xerox in the writer's library, but on it can just be seen the four stoke-holes under the central opening and under them four smaller draught-holes. Two draught-holes can also be seen on either side of the central opening. The objects marked "k" in the illustration in the central opening (marked "f") are the saggars inside the kiln;
l) one of the Pfeifenkasten (saggars);
m) the Tremmkopf (literally, trim-bowl), a horn cone placed in the bowl to prevent its shape being damaged during the smoothing of the bowl by the Messer (see above);
n) small brass plate bearing name of the place of manufacture between several lines of circles, used to impress this marking on the pipe stem (Sprengel 1772: Taf. IV).

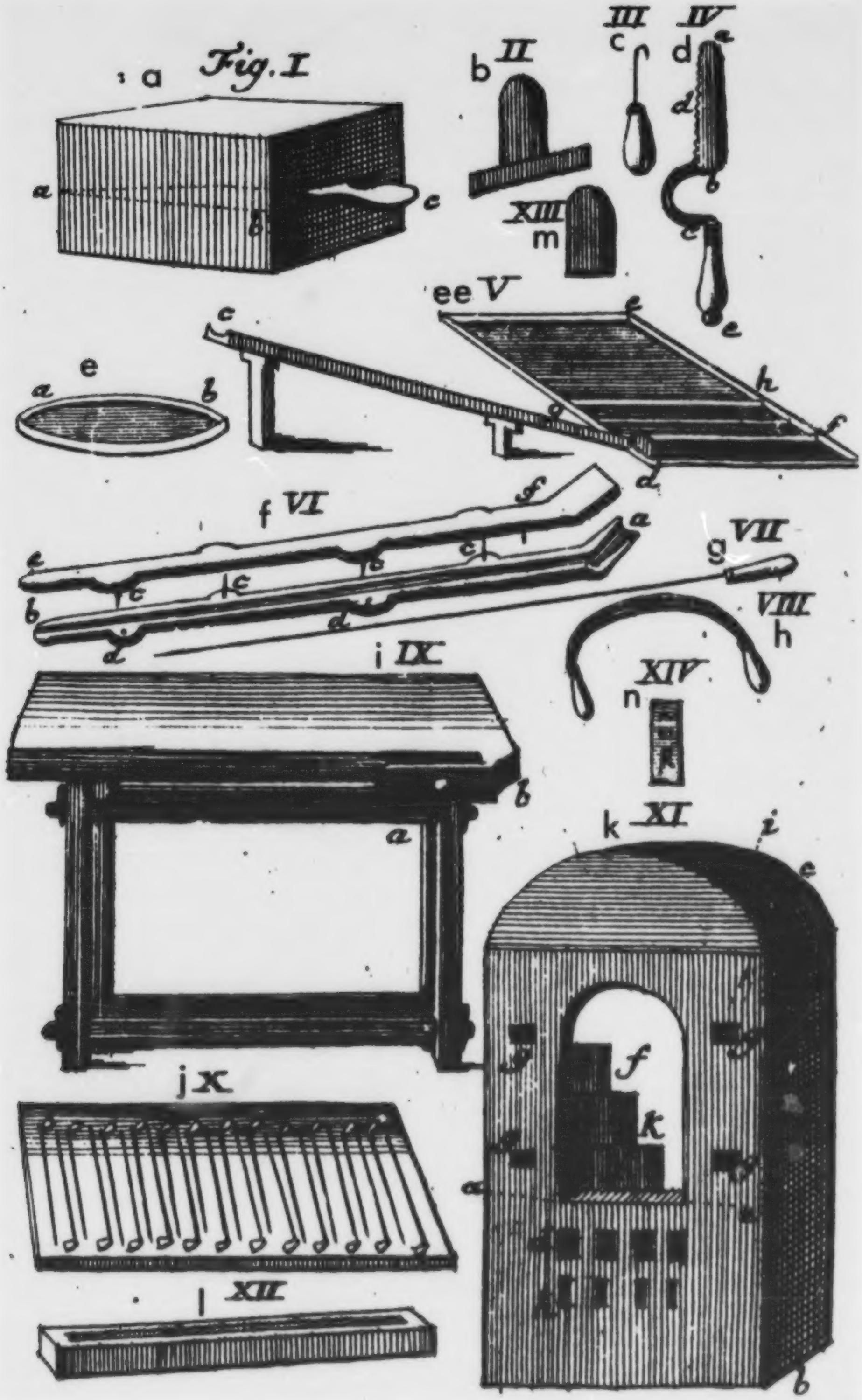
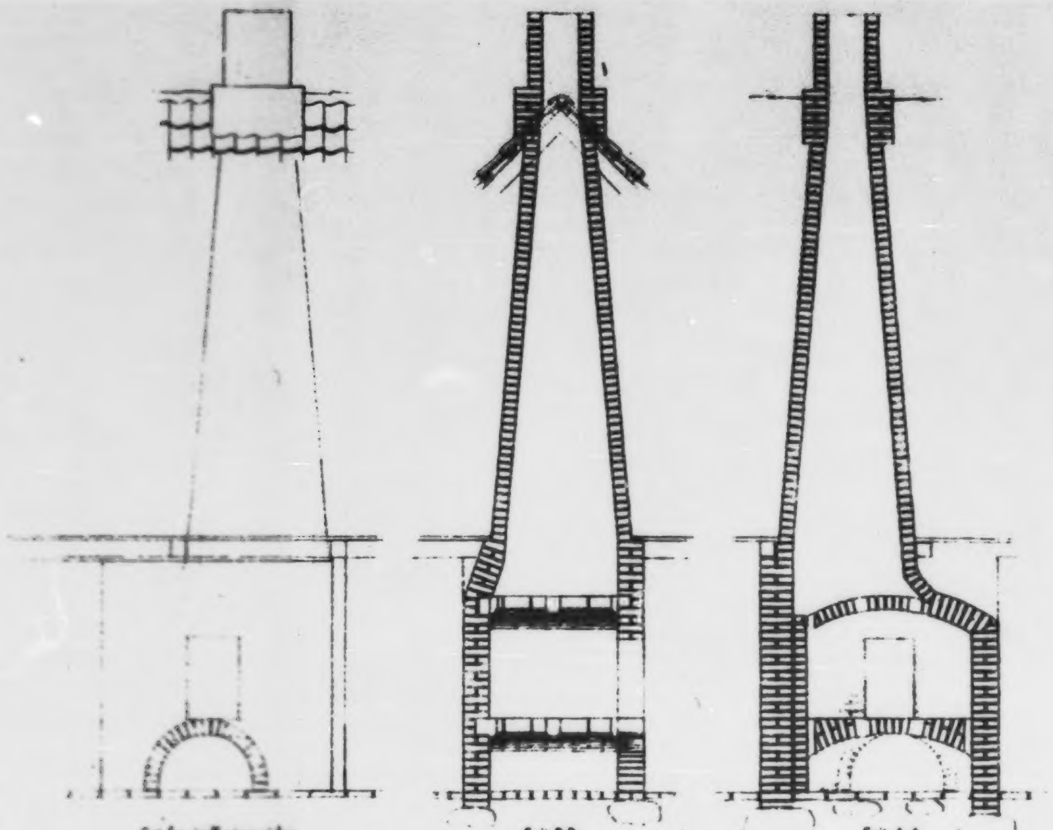


Fig. I
a
a
b
c
II
b
III
c
IV
d
a
d
b
c
e
XIII
m
V
ee
e
h
f
g
c
d
e
a
b
VI
f
f
e
c
c
b
a
d
d
VII
g
VIII
h
IX
i
b
a
XIV
n
XI
k
i
e
f
k
g
a
X
j
XII
l
b

FIG 58

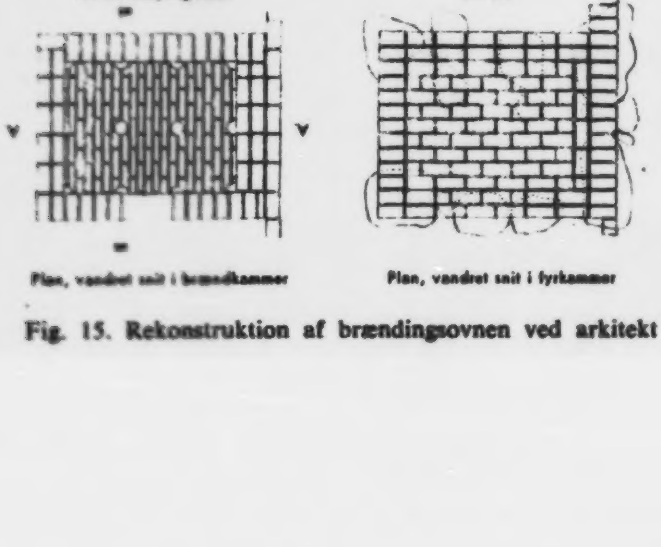
Reconstruction of the Johan Adolf Rømer kiln at Nørresundby in Denmark (Kristensen 1959: 112 fig 15).



Set fra indfyringssiden

Snit B-B

Snit A-A



Plan, vandret snit i brændkammer

Plan, vandret snit i fyrkammer

Fig. 15. Rekonstruktion af brændingsovnen ved arkitekt P. Landgrebe-Nielsen.

FIGS 59-60

Firing technique for glazed pipes produced at the Rømer factory. The stems of stoved pipes were broken off to leave ca.1¼ - 1½ ins and the pipes stood vertically on rectangular plates of unfired clay by pushing the stem into the clay. The plates were turned upside down and dipped into the glaze just deep enough to touch the surface of the plate, then placed in a long rectangular saggar almost 4 ft long by ca.9 ins across and 7 ins deep (FIG 59). Less frequently circular plates (FIG 60) were used in the same fashion and firing took place in circular saggars (Kristensen 1959: 114 fig 16 and 115 fig 17).

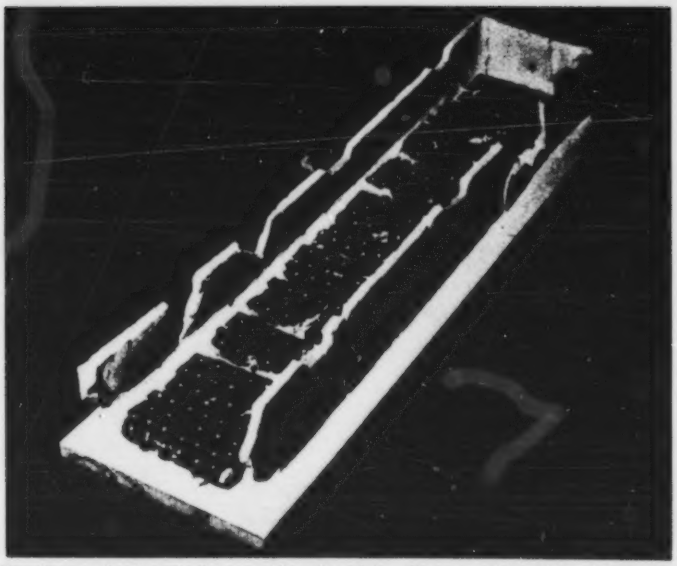


Fig. 17. Brændingskapsel af ler med brændingsplader. Benyttet ved brænding af glaserede piber. Længde 118 cm, bredde 23 cm, højde 18 cm.

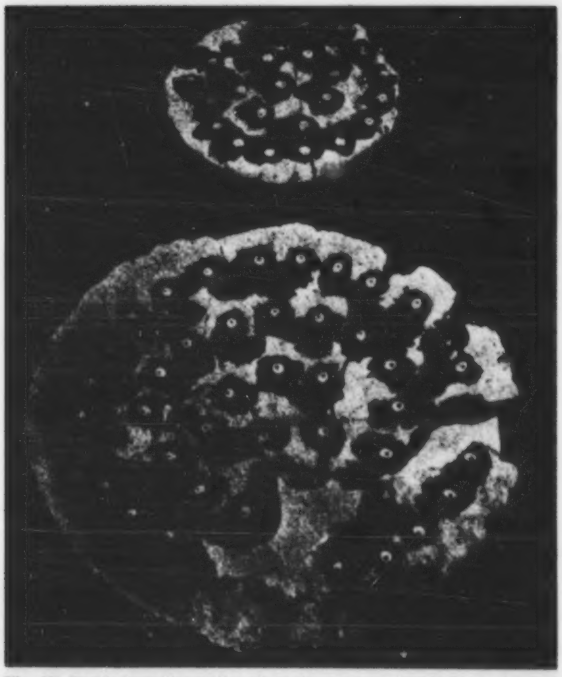


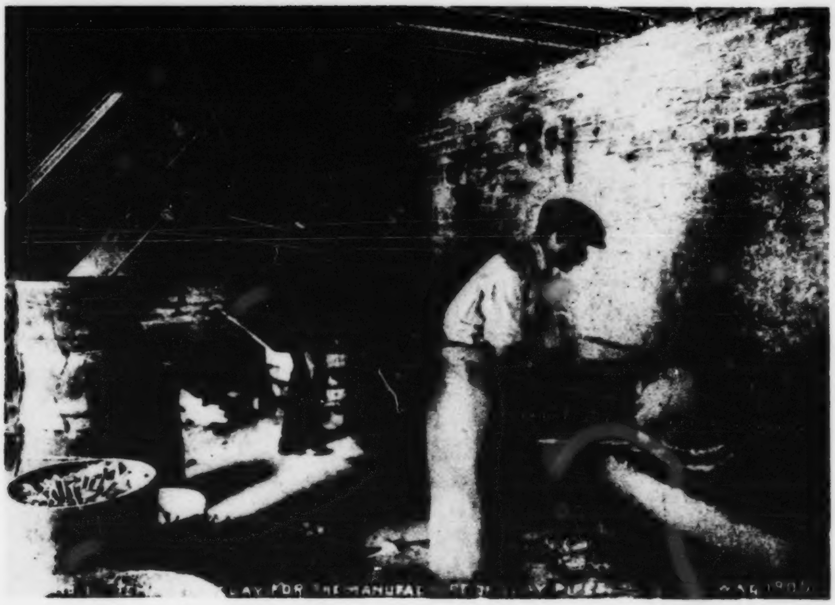
Fig. 18. Runde brændingsplader af ler benyttet ved brænding af glaserede piber.

FIG 61

Preparing the clay by hand at the Belfast pipemaking firm of Hamilton ca.1914. Note the clay spattered on the rafters, presumably from the swing of the tools used to pound and slice the clay on the bench (W.A. Green Collection; Ulster Folk and Transport Museum, Belfast).

FIG 62

Making rolls at the Hamilton factory ca.1914 (W.A. Green Collection; Ulster Folk and Transport Museum, Belfast).


LAY FOR THE MANUFAC
PIPES

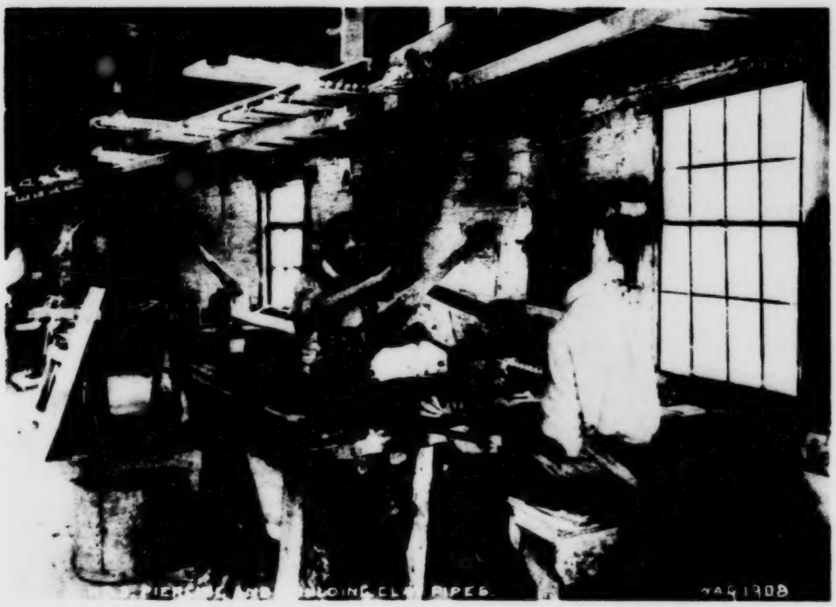
NO 2

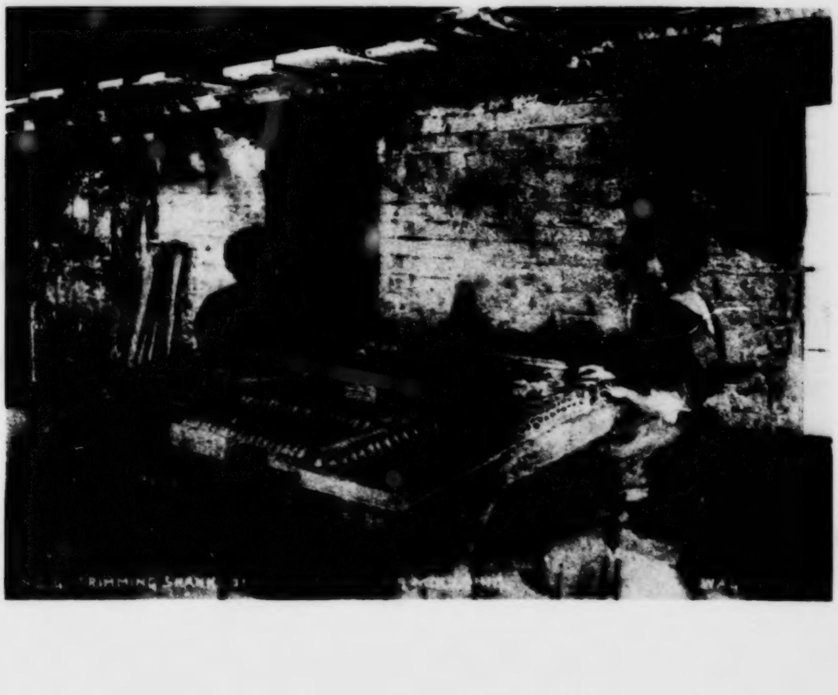
FIG 63

The moulding process at the Hamilton factory ca.1914. The worker in the foreground is wiring a pipe, the man on the farther side of the workbench is moulding one with the gin or head and handle (W.A. Green Collection; Ulster Folk and Transport Museum, Belfast).

FIG 64

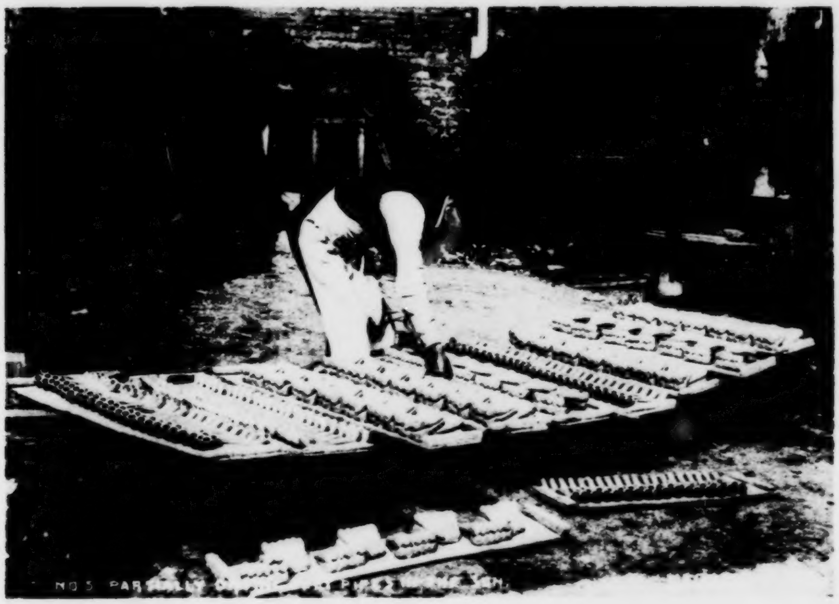
The trimming stage at the Hamilton factory ca.1914. The worker on the right is trimming a pipe with a finisher's knife, the woman on the left is using a smoother (W.A. Green Collection; Ulster Folk and Transport Museum, Belfast).


PIERC[illegible] AND [illegible]LDING CL[illegible] PIPES.
WAG 1908


TRIMMING SHANK
WA

FIGS 65-66

Between rolling and moulding, and after moulding but before firing, clay pipes were left aside to dry, a process known as stoving. FIG 65 shows both rolls and unmoulded pipes being stoved in the sun; FIG 66 shows pipes - the caption implies moulded pipes - being stoved in a simple shelter over what appears to be a brazier. Both pictures are of Hamilton's factory ca.1914 (W.A. Green Collection; Ulster Folk and Transport Museum, Belfast).


NO 5 PAR

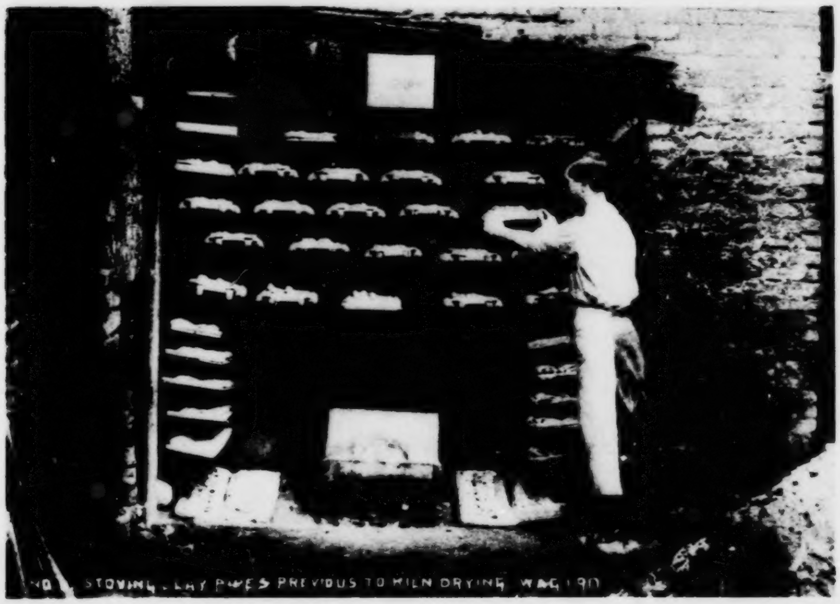
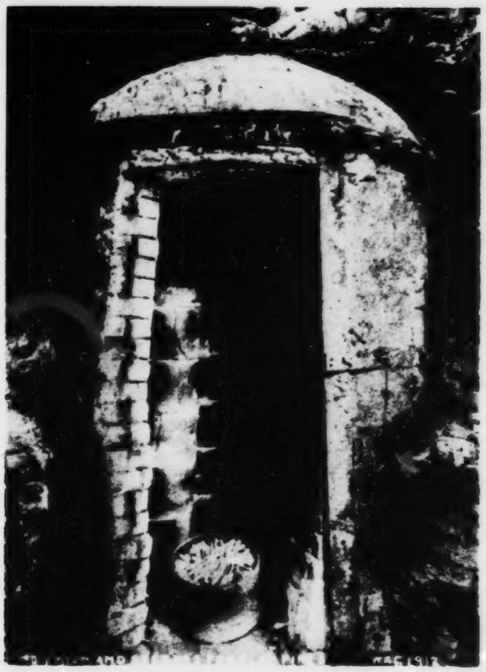

NO STOVING CLAY PIPES PREVIOUS TO KILN DRYING WAG 190

FIG 67

Kiln at the Hamilton factory ca.1914, containing at least four staunches of saggars, with a saggarful of pipes on the foreground (W.A. Green Collection; Ulster Folk and Transport Museum, Belfast).

FIG 68

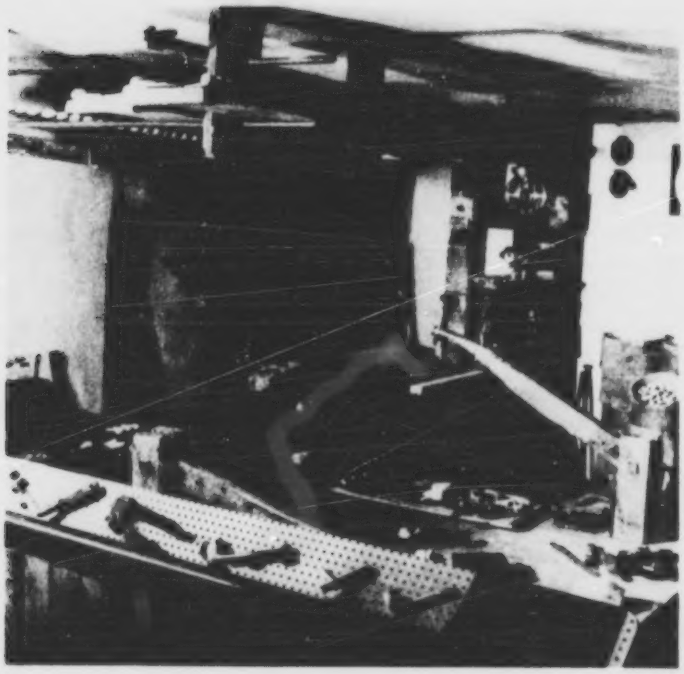
Reconstruction of the workshop of Sampson Strong the last Leeds pipemaker (D 1953) in the Abbey House Museum, Leeds.



FIGS 69-70

Two views of the reconstructed workshop of William Christie of Edinburgh at the Huntly House Museum, Edinburgh (City of Edinburgh Museums).

KLEECO
ING
PIPI



FIGS 71-72

Photographs of the inside of Christie's factory at Leith, Edinburgh, 1904. Men in the foreground of FIG 71 are moulding pipes, women in background are probably trimming pipes; FIG 72 shows the packing department (City of Edinburgh Museums).

FIG 73

The soakers at John Pollock and Co's factory, Manchester, December 1967, where the clay is mixed with water preparatory to being mixed with the spew and put through a pug-mill.

FIG 74

The tool being held is an iron bar formerly used to mix the clay prior to the adoption of pug-mills (cf FIG 61). The pile of clay beneath the bar is the pill, comprising alternate layers of spew - trimmings from the pipe-moulding and -trimming processes - and wet clay from the soakers. In this form the clay is put through the pug-mill, a process known as milling.

FIG 75

Granulated clay being spread into the water in the soakers at Pollock's factory.

FIG 76

Making the rolls at Pollock's factory. An amount of clay of suitable size, known as a nip, is taken in each hand from the lump of clay on the left of the illustration and rolled out, the action of the hand being called a rub. The rolls are then stacked on a separate board known variously as a bunch board, a dozening board, or a bench, as shown in the illustration.

FIGS 77-78

Two other illustrations of rolls being made at Pollock's factory, illustrating different sizes of rolls and different sizes of workers' hands, both of which affect the number of rubs necessary to form the roll. The heavy, short rolls illustrated in FIG 78 are for the pipe illustrated in FIG 108 btm right, which takes a vulcanite mouthpiece.

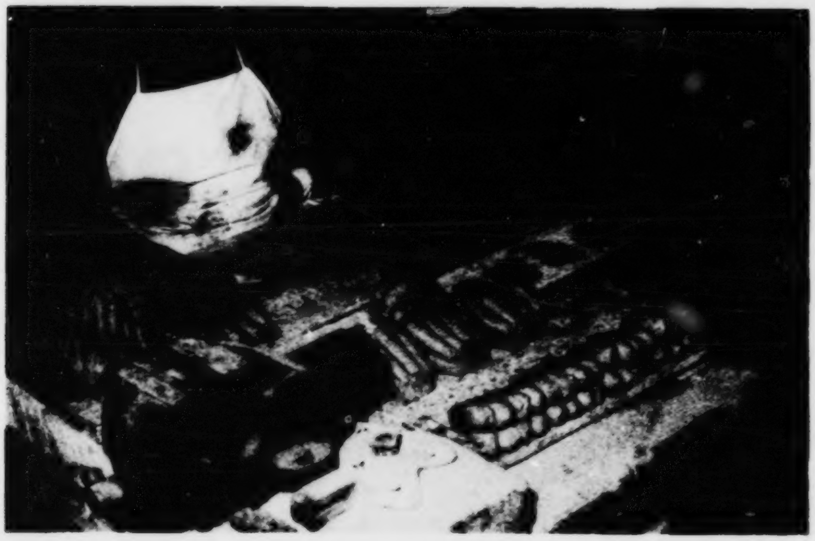


FIG 79

Rolls being set aside at Pollock's factory to dry to the required consistency for moulding.

FIG 80

Bunches of rolls at Pollock's which have been set aside to dry are then dipped in water and the ends of their stems either cut off with a knife or nipped off with the fingers preparatory to wiring.

FIG 81

Pipemaking tools from the reconstruction of the Christie workshop in Huntly House Museum, Edinburgh: a, c, and f are finisher's knives; objects b, d, e, and g are smoothers; and object h is a wire. The first two finisher's knives are made from table knives. Note the blunted end to the wire. The smaller notches in the finisher's knives are for trimming the stem, the larger notches for trimming the bowl. Smoothers also normally have two different-sized grooves for smoothing stems and bowls, as with object d here.

FIG 82

Wiring pipes for moulding at the McDougall and C.B. Ltd (formerly Duncan McDougall and Co Ltd) factory in Glasgow, September 1967. The wire is dipped in a mixture of paraffin and whale-oil in the dish in the centre of the illustration and the roll, taken from one of the bunches piled up on the right of the illustration is pulled over the wire stem first. The wired roll is then placed in the mould (beneath the moulder's hands) and the mould placed in the chest beside the gin or head and handle, right background. The knife (see FIGS 89-90, not to be confused with the finisher's knife - see FIG 81) used to trim the top of the bowl of the moulded pipe lies immediately to the left of the dish of oil. Freshly-moulded pipes lie in the left foreground.

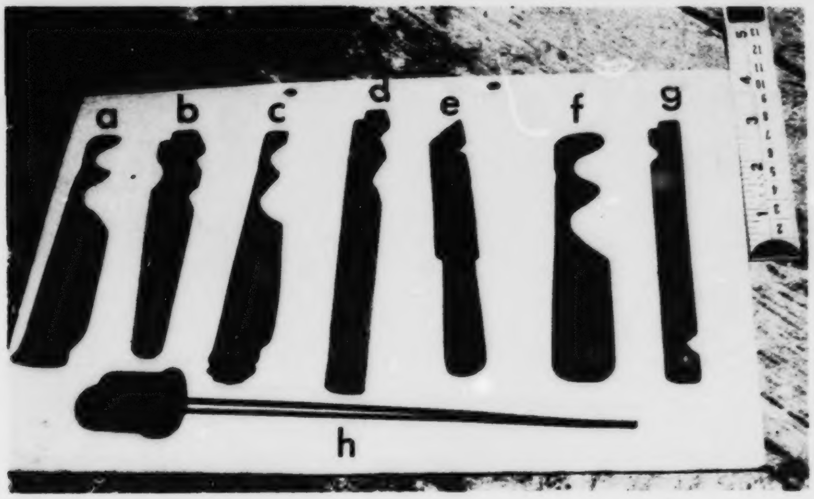

a
b
c
d
e
f
g
h

FIG 83

Wired pipe being placed in mould, Pollock's factory.

FIG 84

Typical two-piece iron mould, shown fitted together (top) and in its two halves (centre and btm). The mould is for a pipe showing on the bowl two footballers chasing a football; a pipe with this decoration is shown immediately above the bottom view of the mould (the other pipe, immediately above the first, is of a mid- or earlier C18 London style and is unrelated to the rest of the material illustrated) (City of Museums and Art Gallery, Birmingham).

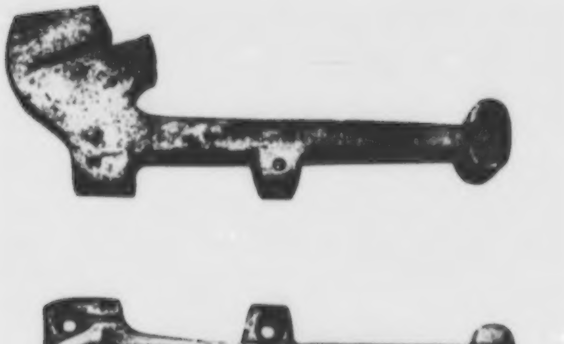


FIG 85

Mould containing wired roll at Pollock's factory being placed in the chest - vice - which lies against the head and handle, the block with the handle in the illustration to which is attached the stopper which will form the bowl.

FIG 86

Close-up of mould in chest, taken at the Willian Christie workshop reconstruction at the Huntly House Museum, Edinburgh. The mould, containing the wired roll, is held in the chest; the finger-like projection above the mould mouth is the stopper which will be force into the mould mouth by the handle attached to the head, the wooden block on the extreme left of the illustration set against the chest.

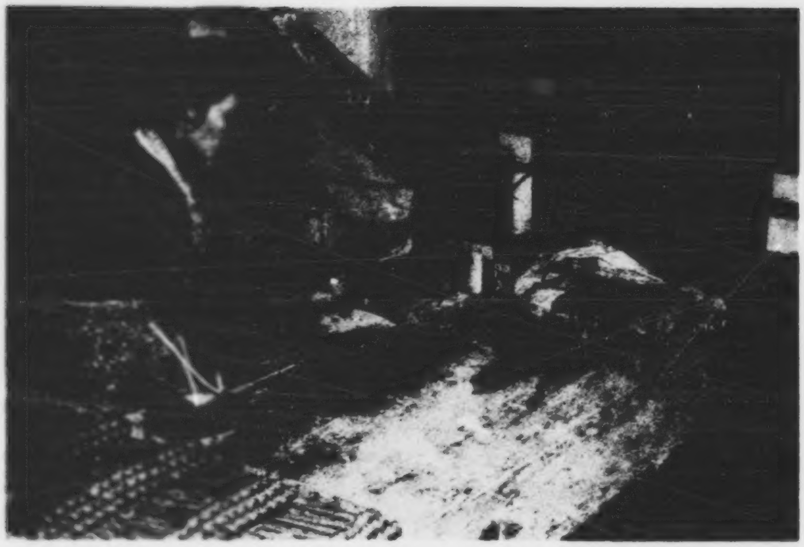


FIG 87

Chest and gin, or head and handle, mounted as a display. The chest holds the mould and is closed by means of a screw attached to the handle in the foreground; the part actually holding the mould was sometimes called the runner, the handle attached to the screw sometimes called the flying handle. The head is the solid block of wood to the left of the chest, the handle of the head and handle being the large lever attached to the top of the head and extending upwards (this whole piece of apparatus is sometimes known as a gin). Attached to the handle near the head is the stopper which when in operation would hang from its bolt in a continuously-vertical position and be rammed by the handle into the mouth of the mould in the chest, thus forming the bowl and moulding the pipe (City Museums and Art Gallery, Birmingham).

FIG 88

Cutting off the top of the newly-moulded pipe at Pollock's factory with a knife (not to be confused with the finisher's knife) the blade of which is pushed into a slot in the mould just below the mould mouth (see close-up in FIG 89).

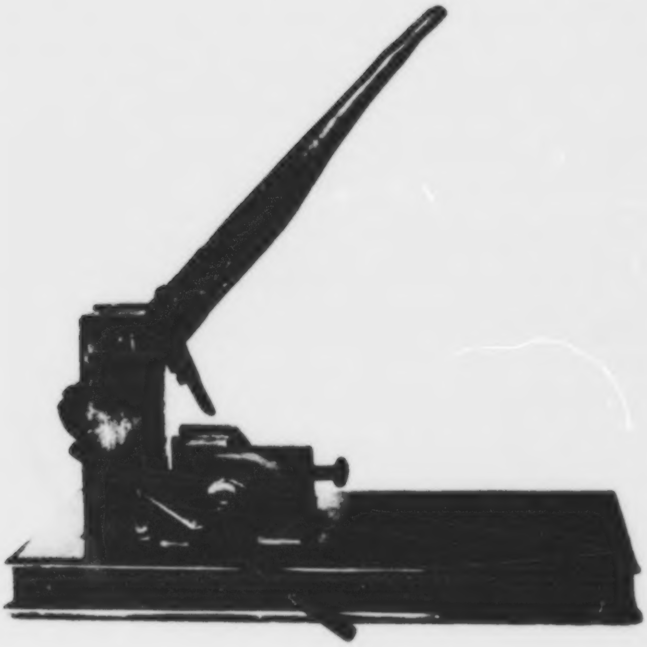
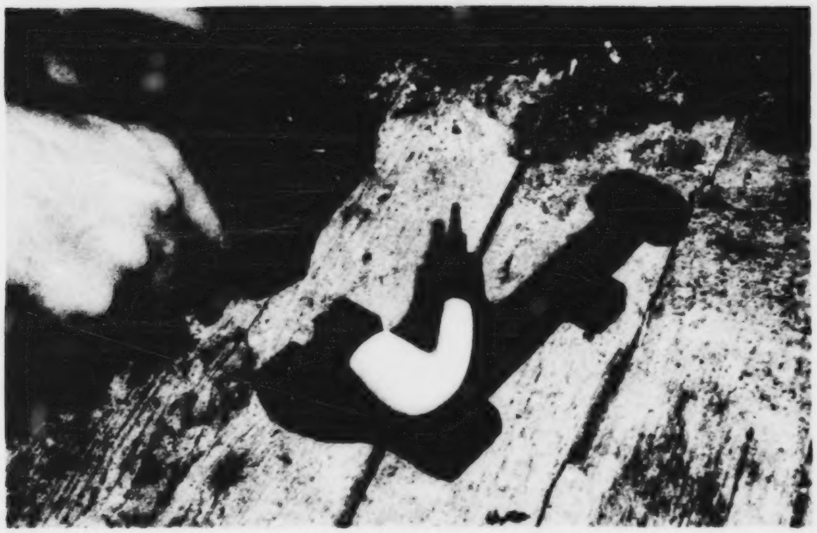


FIG 89

Close-up of the use of the knife. The knife is pushed into the slot near the top of the mould to trim off the top of the newly-moulded pipe, the stopper having been removed and the mould taken from the chest (picture posed with equipment from the reconstruction of the Christie workshop at Huntly House Museum, Edinburgh).

FIG 90

Finishing the moulded pipe at McDougall's factory. A finisher's wire is placed in the stem to keep it stiff and the mould-lines are trimmed off with a finisher's knife. The marks of the finisher's knife will then be smoothed over with the smoother, the tool lying beneath the worker's right hand. The grooves on this tool, a smaller groove to smooth the stem and a larger one for the bowl, are visible.



FIGS 91-92

Trimming the moulded pipe at Pollock's factory. FIG 87 shows a Churchwarden being trimmed with the finisher's knife; the finisher's wire is visible protruding from the stem. Following the use of the finisher's knife, the pipe is smoothed with the smoother (FIG 92), the groove of this instrument here being used on the stem. The finisher's wire is still in the stem.

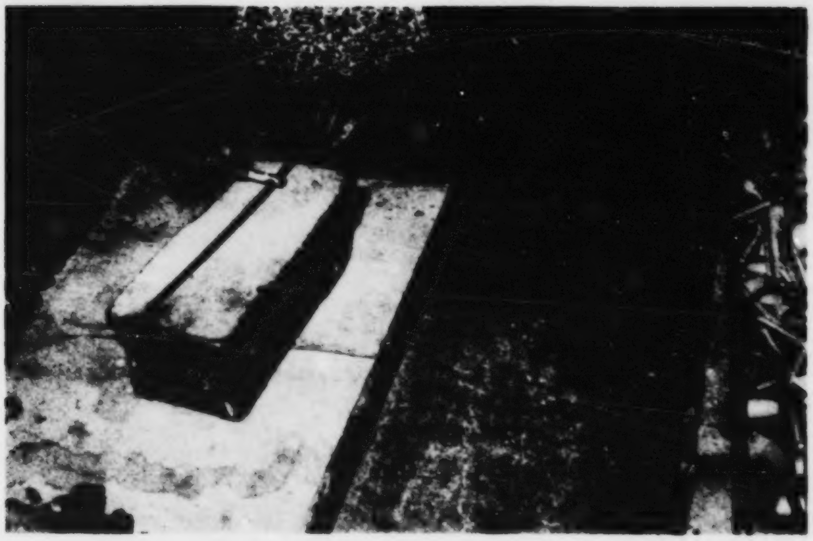


FIG 93

Churchwarden at Pollock's factory after trimming. Following the removal of the finisher's wire the pipe will be placed on the tray on left to be stoved in the curved position indicated.

FIG 94

Pipemaking tools: *a* is a wire; *b*, catalogued as a head tool, appears similar in form to the Dutch *schenker* and was possibly used to finish off the bowl (in view of its name) or perhaps to remove the pep or dottle, the piece of clay pushed into the bowl by the wire; *c* are two smoothers, in this instance without grooves; *d* is catalogued as a shanker; *e* and *f* are two finisher's knives; *g* is catalogued as a cutting off tool, and was perhaps used to finish off the inside of the bowl; and *h* is catalogued as a hand board, and may have been used either for stacking rolls (i.e. as a bunch board, dozening board, or bench) or for finishing off rolls. Note that one finisher's knife has been made out of an open-razor blade, and the other from the blade of a kitchen knife (City Museums and Art Gallery, Birmingham).

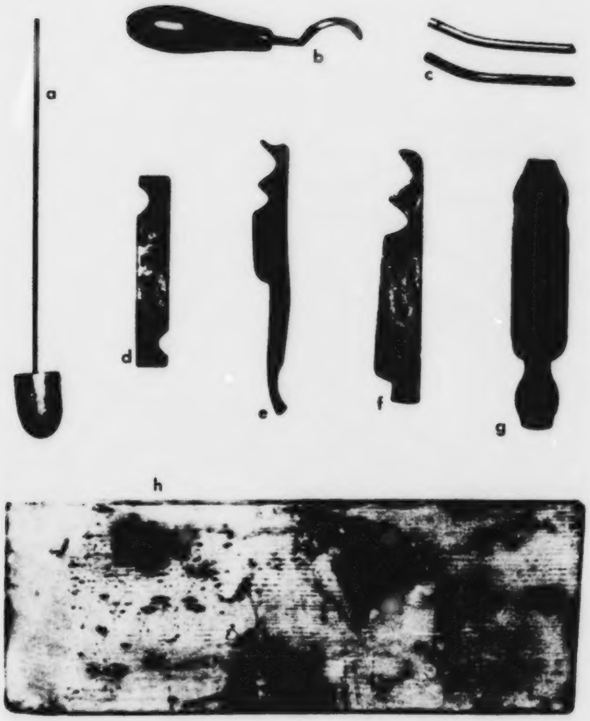

a
b
c
d
e
f
g
h

FIG 95

Freshly-trimmed Churchwardens being placed in racks for stoving - air-drying - at Pollock's factory before firing. The bowls are hooked over ridges at the edges of the trays, the stems lying inside, and in this position the pipes dry with their stems curved in the desired fashion. The two triangular-sectioned planks lying immediately to the right of the tray are placed lengthwise on top of the stems to help prevent warping during stoving (cf FIG 96).

FIG 96

Trays of Churchwardens being stoved at Pollock's factory. Notice the two planks laid over the stems to help prevent warping.

FIG 97

Circular saggar used at McDougall's for firing cutties. The stoved pipes were laid three rows deep with bowls to the outside as here, then three rows with bowls to the centre put in, and so on alternately until the saggar was full.

FIG 98

Rectangular saggars at Southorn's factory, Broseley, shaped like a hump-backed bridge. The shape was presumably to take the curve in the stem of curved Churchwardens; the pipes were laid on a bed of ground-up fired pipeclay (visible in the saggars illustrated).

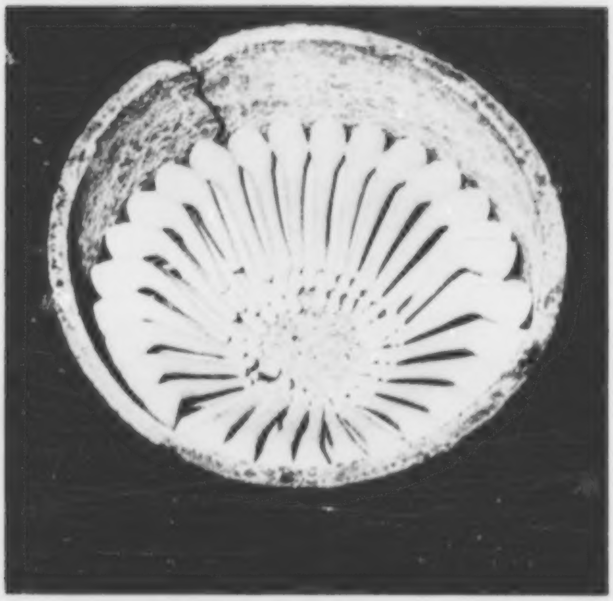
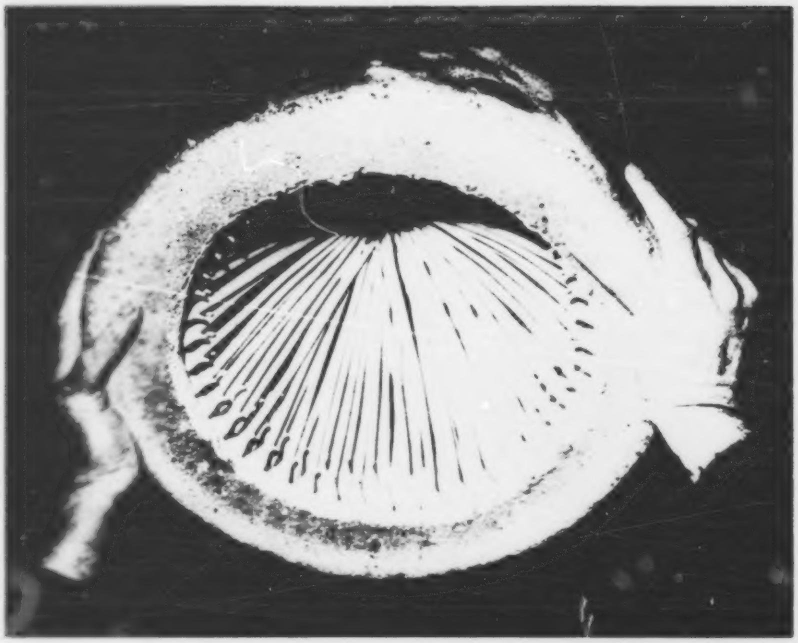


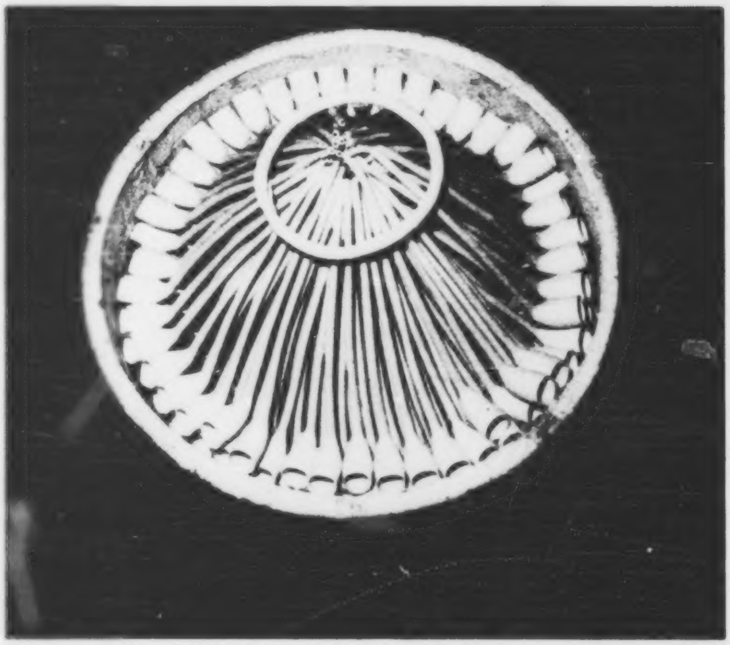
FIG 99

Bottomless circular saggar used at Pollock's factory to fire Churchwardens. The bench on which the saggars are packed is called a potting stool and a wooden stand is placed inside the saggar against which the pipes are stacked until there are enough to support each other. The bowls, as indicated in the illustration, rest on a ridge round the inside of the saggar at the bottom.

FIG 100

A full saggar of Churchwardens at Pollock's factory. A loop of fired pipeclay is sometimes put round the top of the cone of stems to keep them together. The cone of stems protrudes above the top of the saggar but fits into the hollow at the base of the saggar above (cf FIG 99) when they are stacked in staunches.





FIGS 101a-101b

Two views of Pollock's kiln, partially filled with staunches of saggars. The figure in FIG 101b gives a scale for 6 ft 3 ins. Note the clay strapping sealing one saggar to that on top which prevents the flames reaching the pipes. The floor of the kiln, with its downdraught flues, is visible in both illustrations (cf FIG 104); the bag - baffle - which helps to shield the saggars from the direct flames of the fires is visible background left in FIG 101a (cf FIG 107).

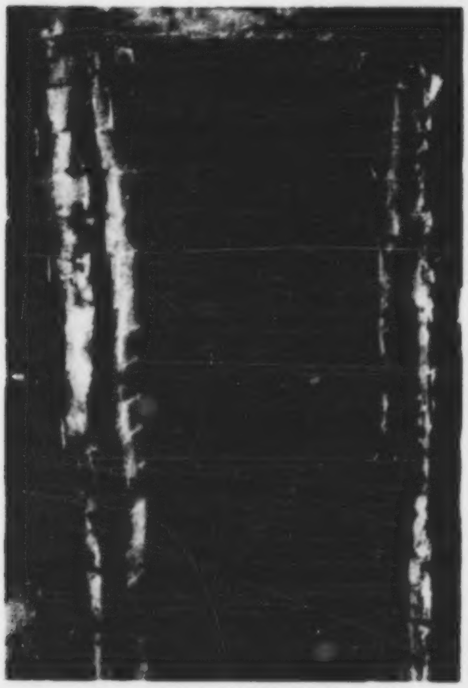


FIG 102

View of McDougall's kiln from the outside. As with Pollock's kiln it is a downdraught, built of brick with encircling metal reinforcing bands. The fires, as with Pollock's kiln, are located round the outside, as shown in the foreground of the illustration.

FIG 103

Close-up of firebox and (below) the ashbox on Pollock's kiln.

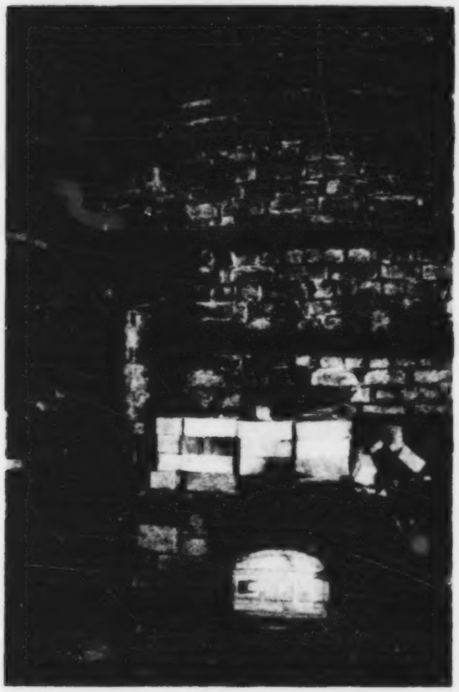
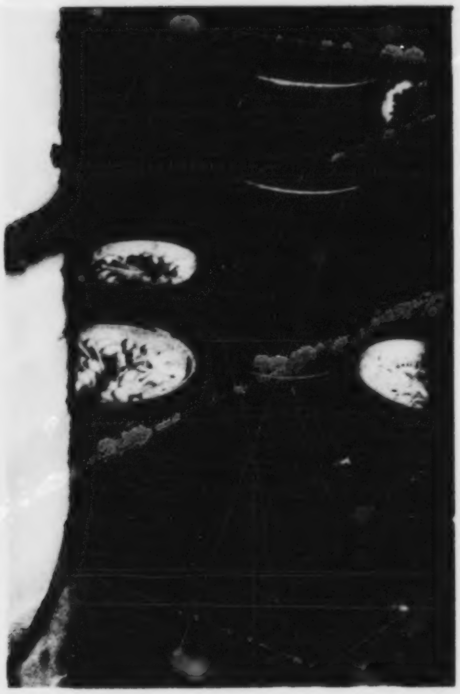


FIG 104

Close-up of flues in the floor of the downdraught kiln at Pollock's factory.

FIG 105

Section-drawing of an updraught Belgian bottle-kiln (from Larsen, Riismøller, and Schlüter 1963: 366).



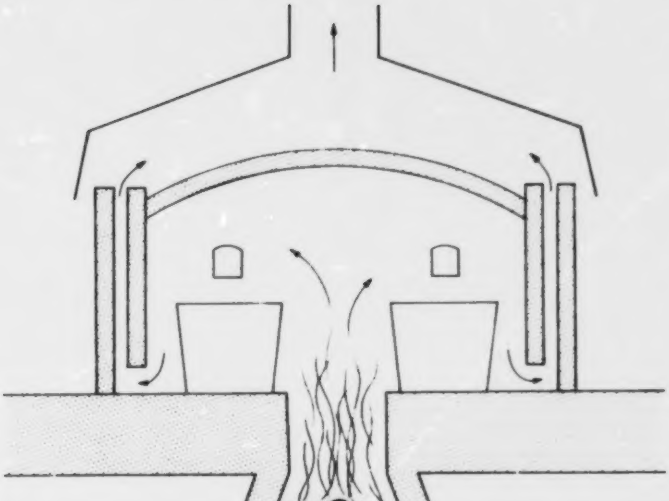


FIG 106

Bottle-kiln at Southorn's factory, Broseley (now disused).

FIG 107

Close-up of one of the bags on the inside of Pollock's downdraught kiln. These are baffles to prevent the full force of the fires on the outside of the kilns from striking the saggars.

FIG 108

Selection of Pollock's products. The long-stemmed pipe second row down, on right, is a Churchwarden of the type shown in various stages of production in preceding illustrations; the pipe immdiately below it is made from a mould apparently dating from the earlier C18. The pipe btm right is an example of Pollock's breaking away from traditional clay-pipe styles; these pipes, which are varnished (cf FIG 109), are made from the rolls illustrated in FIG 78. This pipe takes a vulcanite mouthpiece, as do the other two varnished pipes in the bottom row and the golf-ball bowl pipe in the centre.

FIG 109

Bowls of the pipe shown btm right in FIG 108 being placed on a nail-board preparatory to being varnished, Pollock's factory.

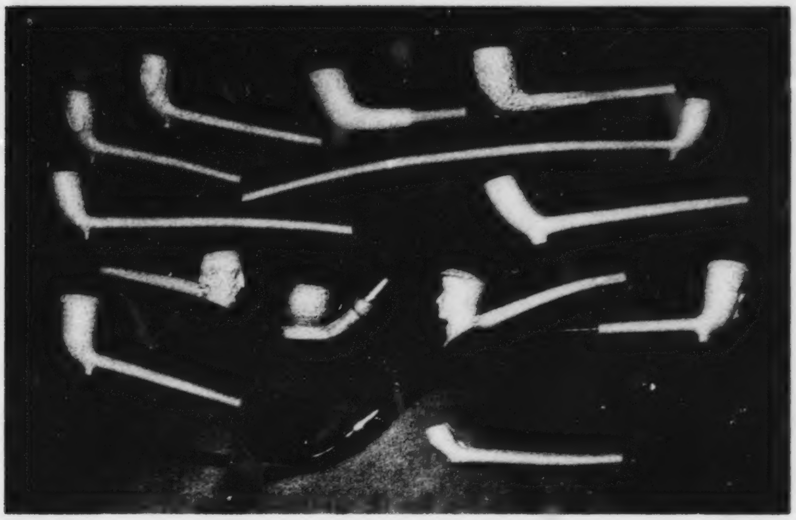


FIG 110

Packing pipes for distribution at McDougall's factory; the tradition here was to pack in wood shavings.

FIG 111

Packed pipes on display 1969 at the Priest's House Museum, Wimborne Minster. The museum building was a former tobacconist's shop and these half-used containers were found in the attic during renovation. The crate has Southorn of Broseley pipes packed in ordinary straw; the box has pipes from the French firm of Gisclon of Lille packed in chopped straw and chaff.

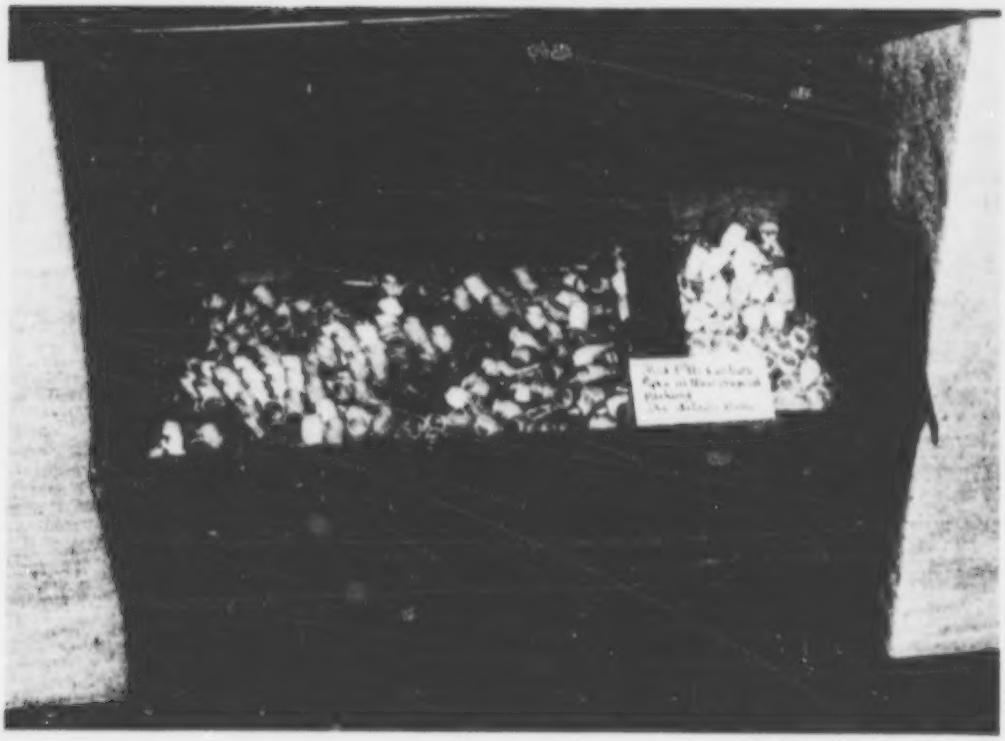
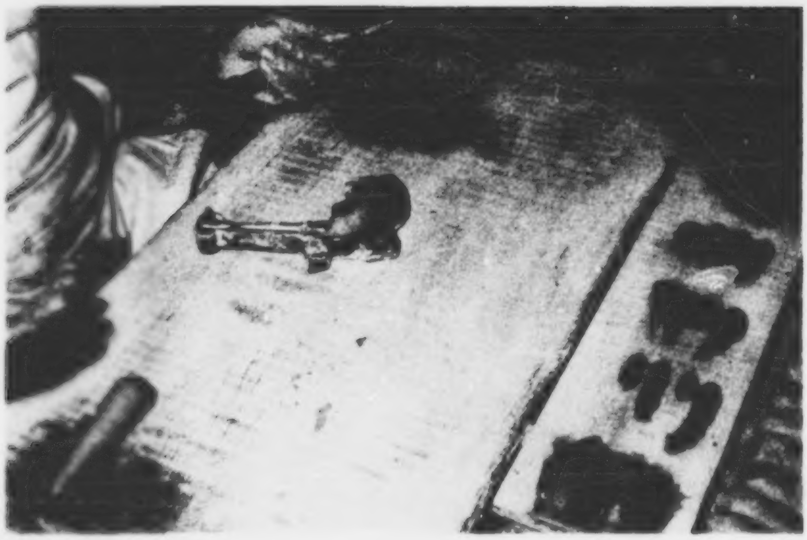


FIG 112

C19 pipe at Nuneaton Museum and Art Gallery, showing the sort of craftmanship possible in clay pipemaking (Nuneaton Museum and Art Gallery).

FIG 113

Manufacture of stub-stemmed pipes at Pollock's factory (the pipe being made is that already noted in FIGS 78, 108, 109; the roll on the left of the illustration is one of those shown being made in FIG 78 with its end not yet cut or nipped off). Instead of using a wire, a bodger bar (as it is called at Pollock's) or poker (as it was known at McDougall's) is used. This is placed in the mould - here a bipartite mould - which is then closed and placed in the chest. The action of the stopper forces the clay from the roll along the mould round the poker, thus forming the short stem.



FIGS 114-116

Manufacture of stub-stemmed effigy bowls in the form of human heads with a tripartite mould at Pollock's. FIG 114 shows the pieces of equipment: on right the bodger bar or poker, which took the place of the wire; centre, the two major parts of the mould with a fired bowl in one part to show where the roll was placed; above, the third part of the mould, carrying the facial part of the mould design. FIG 115 shows the bodger bar in place in the upper part of the mould and the facial part of the mould is being held towards the camera. The moulded pipe is on the right. (FIG 116 over.)

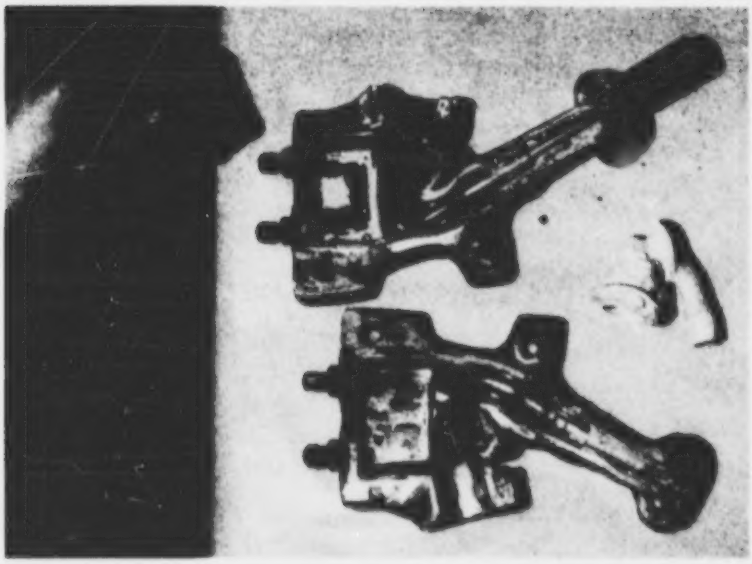


FIG 116

As FIG 115 but showing third part of mould fitted in place in upper section of mould.

FIG 117

Type of mouthpiece common on clay pipes made in France and Germany in the C19 (National Historic Parks and Sites Branch, Ottawa).

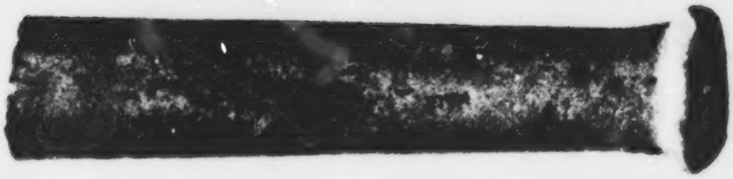


FIG 118

Table of pipemaking terms used in Britain and their Dutch and various German and French equivalents showing the derivation of a number of the latter from the former.

		GERMANY		BELGIUM		
England (ca.1600)	The Netherlands (1600-25)	Brandenburg (prob. via Cologne (ca.1750?)	Westerwald (ca.1700?)	Andenne (from Westerwald) (1768)	Courtrai (C19)	Northern France (ca.1700)
roll	rol	Weller	Rolle	rolle	rolle	rouleau
[roller]	rolder	Roller	?	rolleuse (feminine)	rolder	rouleur[3]
moulder) [caster?])	kaster	(Kaster) (Former)	?	?	kaster	mouleur
wire	weijer	Weiserdrath (mod. Weiserdraht)	Draht	?	(weier (ijzerdraad	broche de fer
stopper	stopper	Stopfer	Stöpfer	schtoup	(stopper (stuiker	étampeux[4]
trimmer	(tremmer (tremster	Tremmer	Trümmerin (feminine)	trameuse[1] (feminine)	tremmer (the process)	trameuse[5] (feminine)
spew	(schrobbles (scrables	Grad (mod. Grat)	Schrubschen	?	?	scraables
shanker	schenker(tje)	Haken	Schenker	schinque)	(smoetter (ijzerken	estriqueux
smoother (tool)	smoier	Messer schmussen (verb only)	schmoudern (verb only)	schmoud)		?
[glazer]	glaaster	Pfeifenglaser (glasen the verb)	?	glaçage (the process)	glazen (the process)	?
button	botter	?	?	boton	bottom	bouton
[polishing liquid]	zeepsop (snollen-the process, snollap-the polishing cloth)	Schnolle	Wachs	?	?	?
saggar	(pijpenpot) (kapsel)	Pfeifenkasten	Kapsel	cazette[2]	?	gassette[6]

---

[1] "trummeuse" recorded at Chokier W of Liège by Jean-Léo

[2] "gazette" recorded by Lefrancq

[3] "rolleur" recorded by Voisin at Givet

[4] "estampeux" recorded by Jean-Léo; "étampeur" by Coolen 1970; "étampoir" by Bitard; "étampon" by Molinier; "schtoup" by Voisin at Givet

[5] "tramasseuse" recorded by Jean-Léo

[6] "cazette" recorded by Voisin at Givet

FIG 119

Pipeclay "mushrooms" with bronze wheel attachment which imparted the rouletting round the mouth of the pipe bowl. Originals at Southorn's factory, Broseley, and possibly late C17-early C18 in date (Oswald files).

FIG 120

Map of kaolin and ballclay deposits in SW England and their presumed parent granitic massifs (information derived from Howe 1914: 6 fig 1; Holdridge 1955: 370 fig 1; Edmonds et al 1969: 101 fig 30; and Highley (comp.) 1975: 4 fig 1 and 9 fig 4).

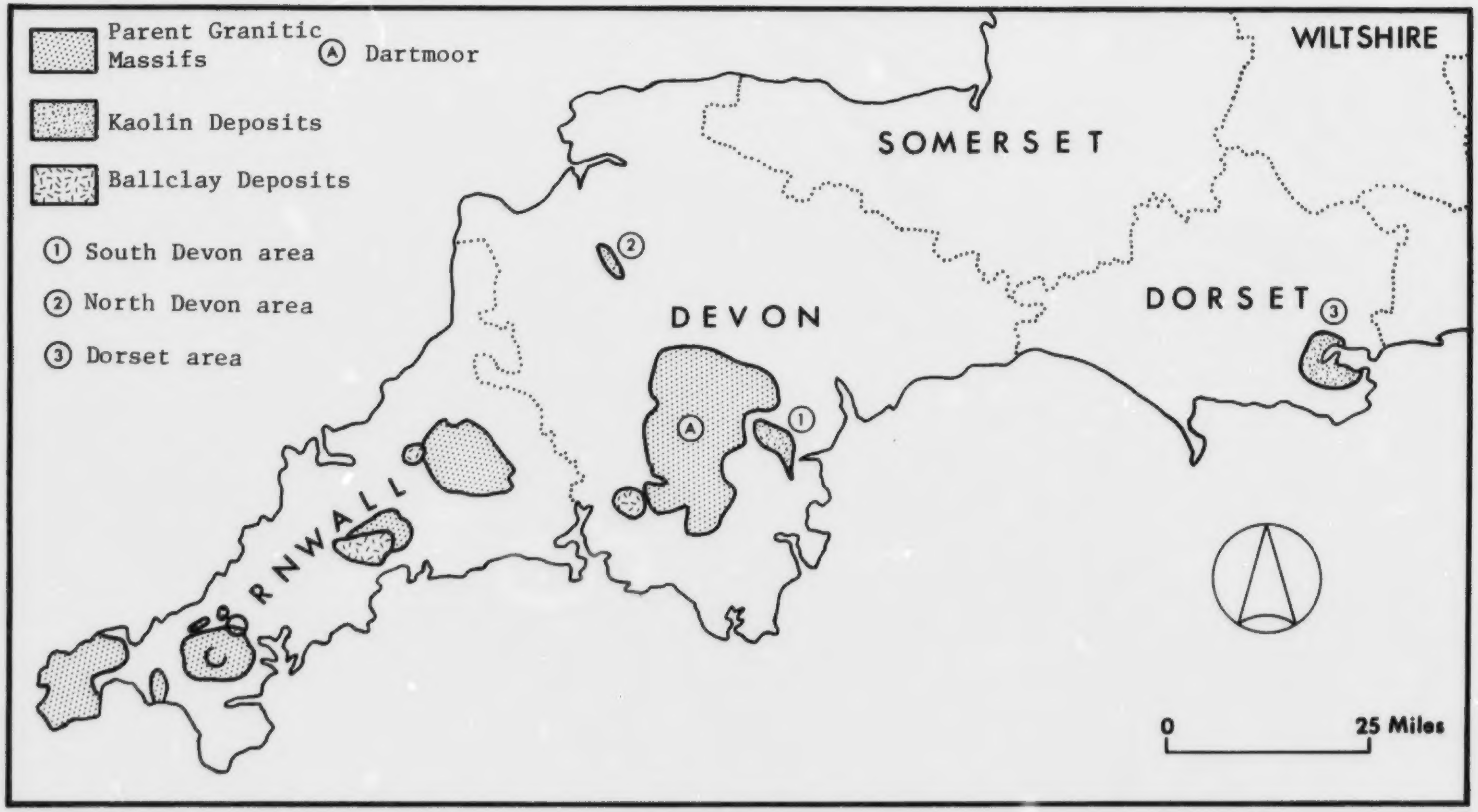
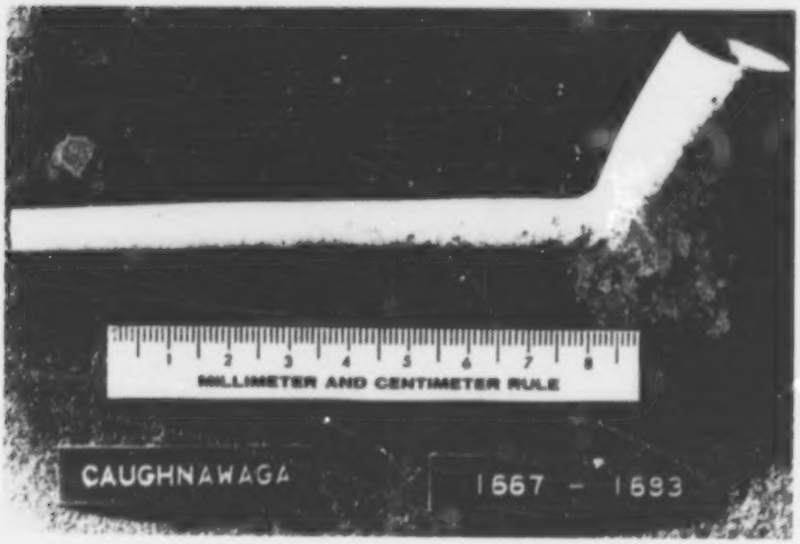

Parent Granitic Massifs
Kaolin Deposits
Ballclay Deposits
Ⓐ Dartmoor
① South Devon area
② North Devon area
③ Dorset area
WILTSHIRE
SOMERSET
DEVON
DORSET
RNWALL
Ⓐ
①
②
③
0
25 Miles

FIG 121

Dutch pipe from the second-half-of-the-C17 Indian site of Caughnawaga, at Fonda west of Amsterdam, central New York state. This shape of bowl is frequently found on Indian sites in New York state within the Dutch sphere of trade, thought this writer has seen none similar in The Netherlands; it may possibly have exercised some influence on English pipes of Oswald's types 7 and/or 9, though as argued in the text at least type 9 bowl shapes can be more plausibly derived from earlier English bowl forms (photograph from J.H. McCashion, Albany, New York state).

FIG 122

Dutch pipe from ealier C18 contexts at the Fortress of Louisbourg, Nova Scotia. This shape appears to be extremely rare among Dutch pipes so far found in North America, and it too is of a shape unknown to this writer from Dutch collections. Like the pipe illustrated in FIG 122, this example could also be claimed as exercising an influence on English pipes of Oswald's type 9 (though not his type 7); however, as noted when describing the pipe illustrated in FIG 122, Oswald's type 9 pipes can be convincingly derived from earlier English bowl shapes (National Nistoric Parks and Sites Branch, Ottawa).


1 2 3 4 5 6 7 8
MILLIMETER AND CENTIMETER RULE
CAUGHNAWAGA
1667 - 1693

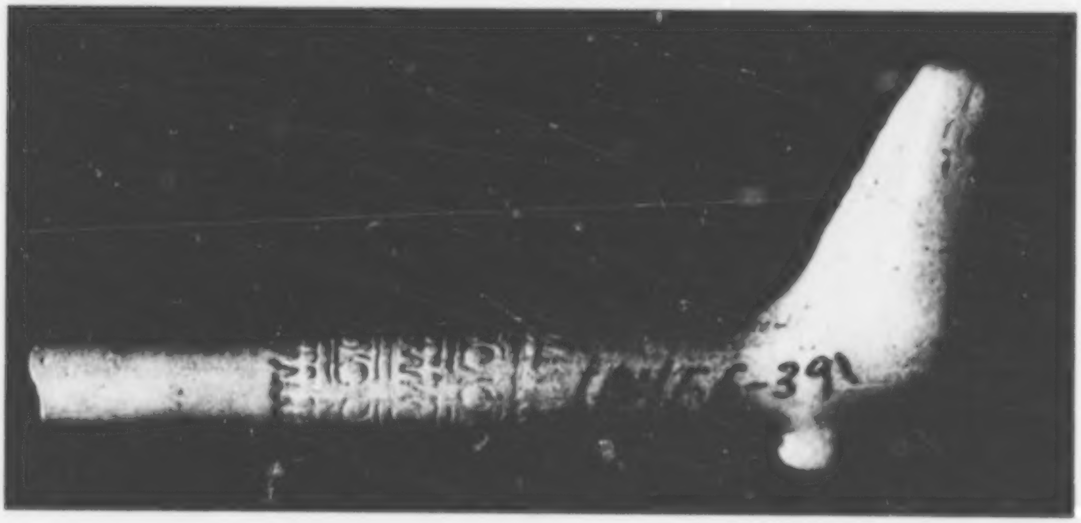
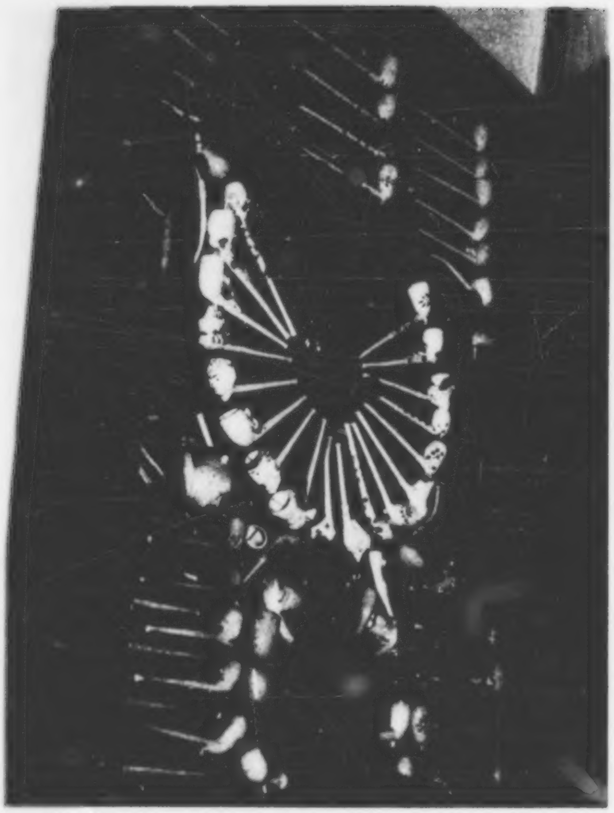


FIG 123

Display case of products of the Baumbach, Westerwald, firm of Wilhelm Klauer Söhne K.G. probably dating to the begining of the C20. The firm was founded in 1890 and is at present the largest producer of clay pipes in the Westerwald. The firm also produces pottery.

FIG 124

Display case of pipes of the firm of Wingender from Chokier, near Liège, at the Musée de la Vie Wallone in Liège, containing 87 pipes, 4 miniature pipes, and a cigar/cigarette holder, exhibited by the firm at the Philadelphia Exhibition of 1878. The Wingender firm was established at Chokier in 1818 and continued there until after WW 1; the family came from Höhr in the Westerwald, where the name in various spellings is known in the pipemaking trade in the C19 and late C18.



FIGS 125-127

Site and surroundings of Fiolet factory at Saint-Omer as they were in April 1969, apparently only a few weeks after the last parts had been demolished (the factory had closed ca.1919). FIG 126 is a view looking SW from the junction of the rue des Béguines (left) and the rue Gambetta (rt). FIG 127 shows typical houses on the south side of the rue Thiers (formerly the rue du Faucon) which runs parallel to and south of the rue Gambetta, opposite the site of the factory. The Fiolet factory occupied virtually all the block bounded by the rue des Béguines, the rue Gambetta, the rue des Blanches Manches (see FIG 128 - its buildings are visible in the distance in FIG 126), and the rue Theirs (running to the far left of FIG 126). (FIG 128 over.)

FIG 127

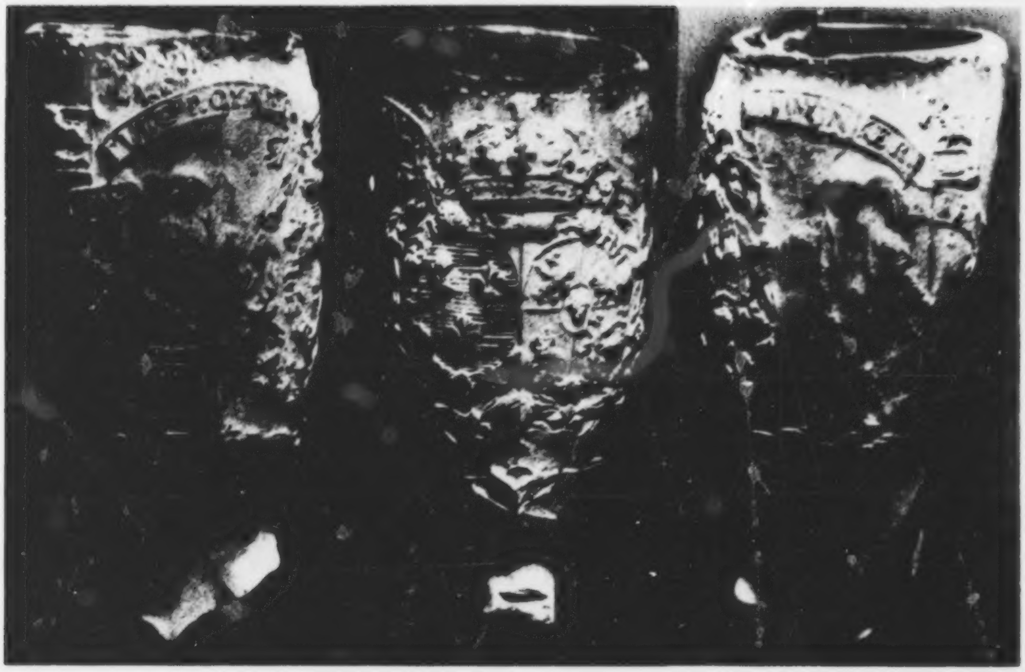
Houses in the rue des Blanches Manches, an alley which runs from the rue Theirs to the rue Gambetta (its northern end is visible on the right of FIG 126). The name of the alley - street of the white sleeves - is an allusion to pipemaking.

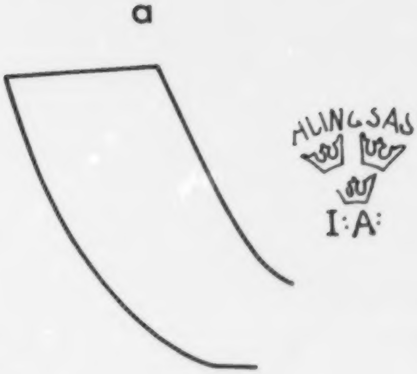
FIG 128

Composite photograph of Dunkirk-made pipe from the Fortress of Louisbourg, Nova Scotia, possibly datable to ca.1751-58 (National Historic Parks and Sites Branch, Ottawa).

FIG 129

Pipes a and b are C18 Swedish pipes produced respectively at Alingsås and Varberg. The shape of pipes a and b is a direct copy of Oswald's London-Home Counties type 9 shape of the C18 and the maker's marks, which use the initials of the factory-manager or pipemaker, also show English influence (from Puktörne 1968: 78 fig 5).




a
ALINGSAS
I:A:

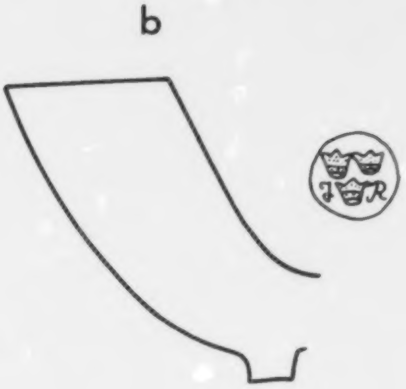

b
I R

FIG 130

General view of area immediately west of Montreal pipemaking area of the second half of the C19, looking west from the approaches of the Jacques Cartier Bridge, taken October 1969. Maisonneuve Blvd runs under the Bridge approach from the left; the back of the houses centre and right are of dwellings on Dorion St (known last century as Shaw St). The Montreal pipemaking ghetto, now demolished, lies under the bridge approaches a few blocks to the left of the photographer, but the essentially slum nature of the area can be seen in this illustration.

FIG 131

View taken October 1969 of Erie St looking south towards Dorion St; the now-cleared area to the right of the photographer and behind the photographer was occupied by a number of Montreal pipemakers last century.

FIG 132

Dorion St looking west, October 1969. The nearer arrowed premises, now 1056-60 Dorion St, was 32 Shaw St last century and occupied in 1870 by Montreal pipemaker Dennis Murney; the farther, now 1094-1098 Dorion St, was 48 Shaw St and occupied in 1867 by Richard Gibson.

FIG 133

East side of White Horse Rd (prior to 1938 White Horse St), East London, in April 1968 looking SE, between Wakeling St (Green St last century) on the extreme left and Commercial Rd, just out of the picture to the right. The plain two-storey brick row of dwellings is directly opposite the site of the Ford family's pipemaking premises in White Horse Rd and probably dates to ca. 1820. The Fords are recording making pipes at their White Horse Rd premises 1823-1909 though a family business card gives a founding date for the business of 1810 and family tradition indicates they started in White Horse Rd, and it seems probable their premises would have been similar in appearance to those opposite shown here. The "White Horse" tavern on the right has a history of more than 350 years, being noted in a 1615 survey of lands held in East London by the Mercers' Company.

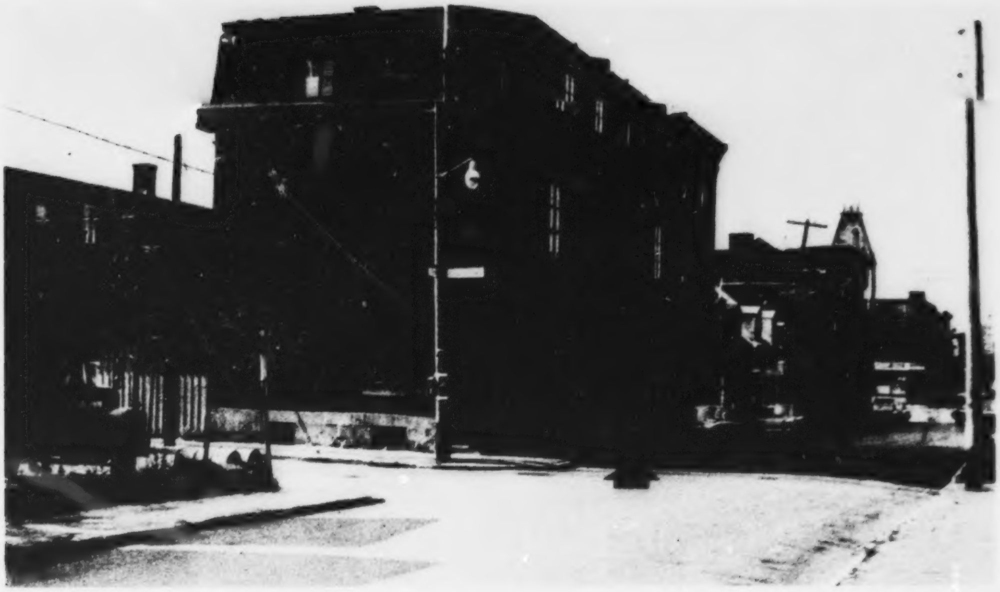


FIG 134

East side of White Horse Rd viewed April 1968 from point immediately south of the viewing point of FIG 133. The ca.1820 two-storey dwellings opposite the site of the Ford premises are on the righ; the more pretentious three-storey row immediately north of Wakeling St (centre left) probably dates to ca.1855.

FIG 135

Site of 15 Wentworth Place (97 Mile End Road after 1863), East London, April 1968, into which premises the White Horse Rd Fords expanded in 1841, taking it over from another pipemaker, Thomas Balme, and occupying it until 1905. The premises lay immediately left (west) of Morry's hair styling shop (centre rt), occupying most of what is now the passage between Morry's (99 Mile End Rd) and the ABC Cinema (93-95 Mile End Rd). In the mid-C19 the site of the ABC Cinema was "The Eagle" tavern at 14 Wentworth Place (later 95 Mile End Rd), one of the salon theatres which were precursors of the Victorian music hall; by 1894 it was the Paragon Theatre of Varieties with a small covered lane on its eastern side which is presumably Eagle Passage (not to be confused with the now-demolished Eagle - after 1938, Eaglet - Place three properties further east) noted in one directory entry as the Ford address. This lane led to premises farther back which were most probably the Ford pipemaking property (occasionally Balme and Ford were listed at 14 or 14a Wentworth Place, suggesting some connection between "The Eagle" and the pipemaking premises). Eaglet Place is on the extreme right, where the figure is standing. (The industrial building to the rear is Charrington's brewery.)

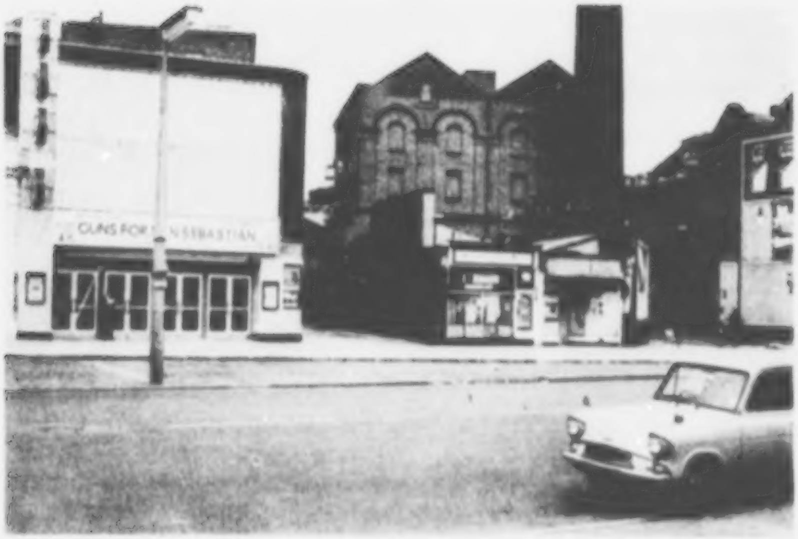

GUNS FOR SAN SEBASTIAN

FIG 136

Site of 15 Wentworth Place (97 Mile End Rd after 1863), East London, April 1968 (cf FIG 135). The long featureless wall right is the east side of the ABC Cinema, Eagle Passage running beside it behind the car and figure on extreme right. The panel van is leaving Eaglet Place, which at the time this photograph was taken was being demolished. Three-storey row of premises to right of photograph, now 107 Mile End Rd and upwards, was called Ireland Row prior to 1863 and some of the properties probably date to ca.1725.

FIG 137

Durham Row (prior to 1879 Church Row), East London, looking east, now a cul-de-sac opening off White Horse Rd immediately east of St Dunstan's Church (trees of churchyard visible in background). Number 4 Church Row, now 5 Durham Row, was occupied by the White Horse Rd-Mile End Rd Ford pipemaking business for the single year 1879; the premises were (April 1968) those of a butcher R. Pack and Son and directly behind the child in centre of photograph.

DIPLOMAT
34
D.H.FALL
WALTE

FIG 138

Durham Row, East London, looking west (cf FIG 137. Number 5, the Ford premises in 1879 (then4 Church Row), is R. Pack and Son's butcher's shop in the mid-distance.

FIG 139

Southern half of Northdown St (in the C19, North St), Pentonville, London, April 1968, looking south to Pentonville Rd. The White Horse Rd John Ford had a branch here and is recorded 1826-65, being suceeded in the business by a son-in-law Ebenezer Church sr and latterly by Church's widow, Sarah, until the business closed in 1894. The business was at numbers 23-25 (prior to 1891, numbers 27-28) the site of which is immediately adjacent to the present end property of the architectural front extending into the middle distance (in the gap in the line of properties in the middle distance, immediately behind the far lamp-post). This street was being built at the end of the C18 and the first decades of the C19; its architecture suggests it was an area of some pretentions. Ford was presumably an early occupant of the area, and it is perhaps suprising that in an area obviously planned as residential he was able to carry on a business such as pipemaking so soon after it had been built. Although they stopped pipemaking on the premises after 1894, and indeed restarted that trade at another address (p. 379), the Church family possibly continued to own the property until it was demolished ca.1934, for in the earlier 1930s an Ebenezer Church is recorded at number 25 as a scientific instrument maker. In the C19, John Ford and the Churches also owned two adjacent houses on the opposite side of the street.

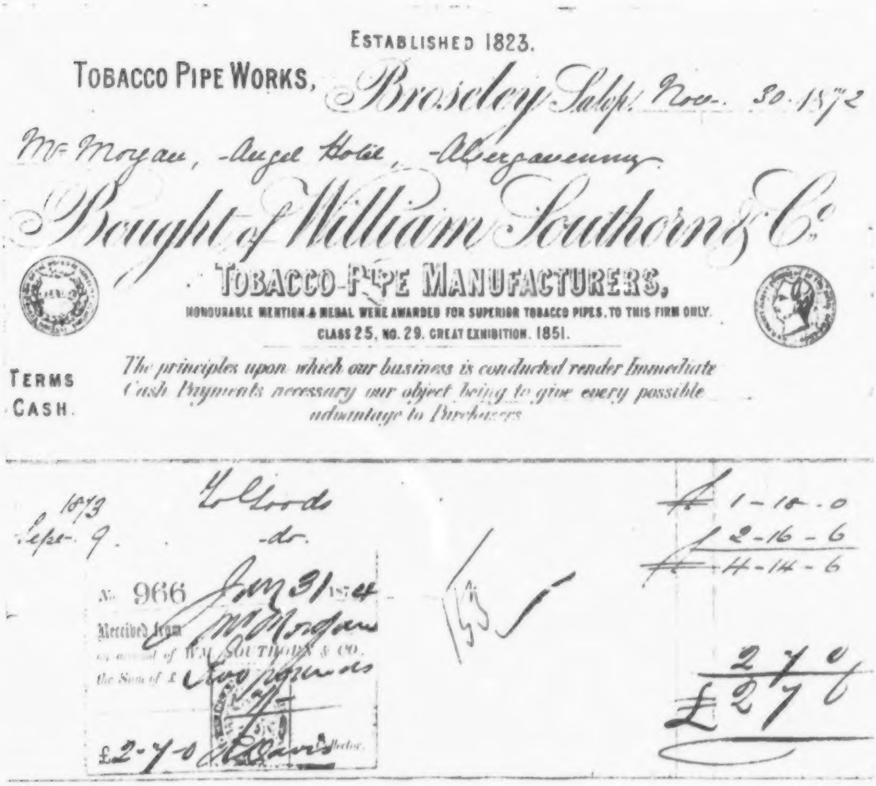
FIG 140

Southermost part of Cannon Street Road, East London, looking north, April 1968. A Ford family of pipemakers (so far as is known, unrelated to the Ford family whose properties appear in FIG 133-37) is recorded here (on the west side of the street, now cleared) 1836-53, the premises continuing to be used by pipemakers until 1892. The row of properties opposite the Ford premises shown here have architectural fragments of everything between ca.1780 and ca.1880 and in all probability Ford's premises would have been appeared much the same as these.

FIG 141

Bill from William Southorn and Co to Angel Hotel Abergavenny, dated 30 November 1872. The entry "1873 Sept 9" appears to refer to the lower of the two "To Goods" entries, that costing £2 16 6, and the upper to an order of 2 December 1872 for eight gross Broseley Smoke Rooms at 4s6d a gross plus 2s for the box; this at any rate is the interpretation from comparing the account with the Angel's ledger-book entries which list the 2 December 1872 order for the amount listed in the first entry in the bill and a "To Goods" for £2 16 6 for 9 September 1873. The landlord of the Angel, William Morgan, evidently paid only part of this bill, the receipt dated 31 January 1874 being only for £2 7 6 and a balance of £2 7 6 being outstanding. The survival of this material from the Angel is due to its being kept in a lawyer's office after bankrupcy at the Angel, so Southorn may never have been paid the full amount; he appears to have received back this bill subsequently, however, for the signature "William Southorn and Co May 1874" appears on the reverse. (Original bill in possession of writer.)

VICTO
Glo
TABLE W



ESTABLISHED 1823.

TOBACCO PIPE WORKS, Broseley Salop. Nov. 30. 1872

Mr Morgan, Angel Hotel, Abergavenny

Bought of William Southorn & Co.

TOBACCO-PIPE MANUFACTURERS,

HONOURABLE MENTION & MEDAL WERE AWARDED FOR SUPERIOR TOBACCO PIPES, TO THIS FIRM ONLY.

CLASS 25, NO. 29. GREAT EXHIBITION. 1851.

TERMS CASH.

The principles upon which our business is conducted render Immediate Cash Payments necessary our object being to give every possible advantage to Purchasers

1873 Sepr. 9.	To Goods		£ 1-10-0
	do.		£ 2-16-6
			£ 4-14-6
		153	
			2 7 0
			£ 2 7 0

No. 966 Jan 31 1874

Received from Mr Morgan

on account of WM. SOUTHORN & CO.

the Sum of £ Two pounds 7/-

£2-7-0 H. Davis Collector.

FIGS 142-145

Four maps showing the revival and ultimate decline of the Bristol pipemaking industry in the C19 and its progressive retrenchment within the St Jude's area (outlined in FIG 142). Each dot represents a pipemaking premises used during the period covered by the map; smaller dots are used in FIGS 143 and 144 in the St Jude's area because of the concentration of premises there. Data has been taken from trade directories only; as it is often difficult to tell whether new makers took over premises of former makers because frequently the number of the premises on many of the streets are not given or there are other directory ambiguities(cf 6: VI) the dots represent as far as possible a minimum number of premises. FIG 142 covers the period 1775-1809; FIG 143 the period 1810-30; FIG 144 the period 1841-60; and FIG 145 the period 1871-1900 (Base-map is the Geographia Plan of Bristol 4½ ins to mile).

(c) Geographia Limited, Crown Copyright Reserved

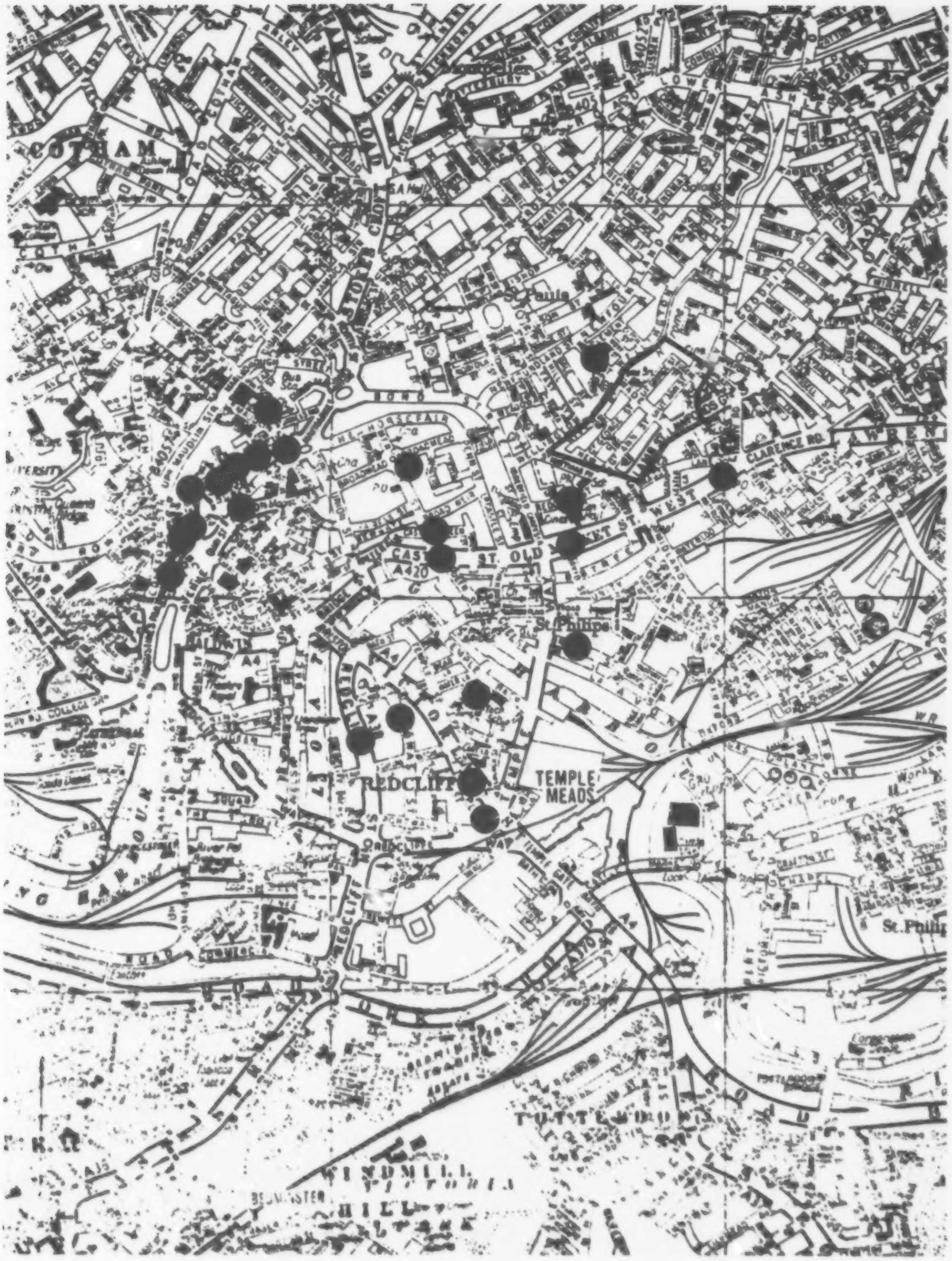

COTHAM
St. Pauls
HORSEFAIR
BOND
CLARENCE RD.
WEST
OLD
CASTLE
A420
St. Philips
REDCLIFF
TEMPLE MEADS
HARBOUR
A4
St. Philip
WINDMILL
HILL
BEDMINSTER
UNIVERSITY
A38
A370
LAWRENCE

FIG 143

See legend for FIG 142.

(c) Geographia Limited, Crown Copyright Reserved

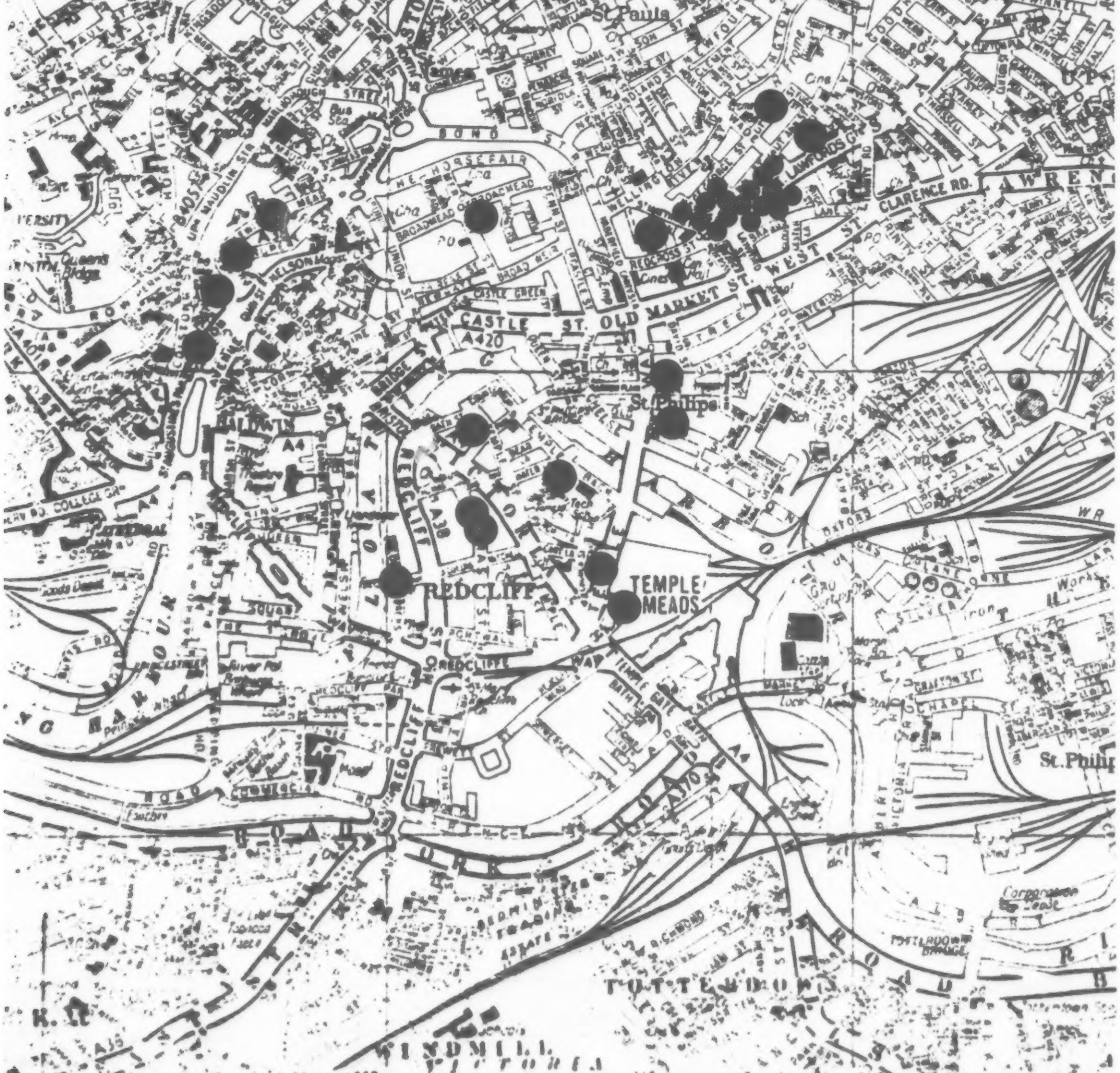

COTHAM
Montpelier
St Pauls
CLARENCE RD.
WEST ST.
OLD MARKET ST.
CASTLE ST.
St Philips
REDCLIFF
TEMPLE MEADS
REDCLIFFE WAY
St. Philip
TOTTERDOWN
WINDMILL HILL
VICTORIA PARK
BEDMINSTER

FIG 144

See legend for FIG 142.

(c) Geographia Limited, Crown Copyright Reserved

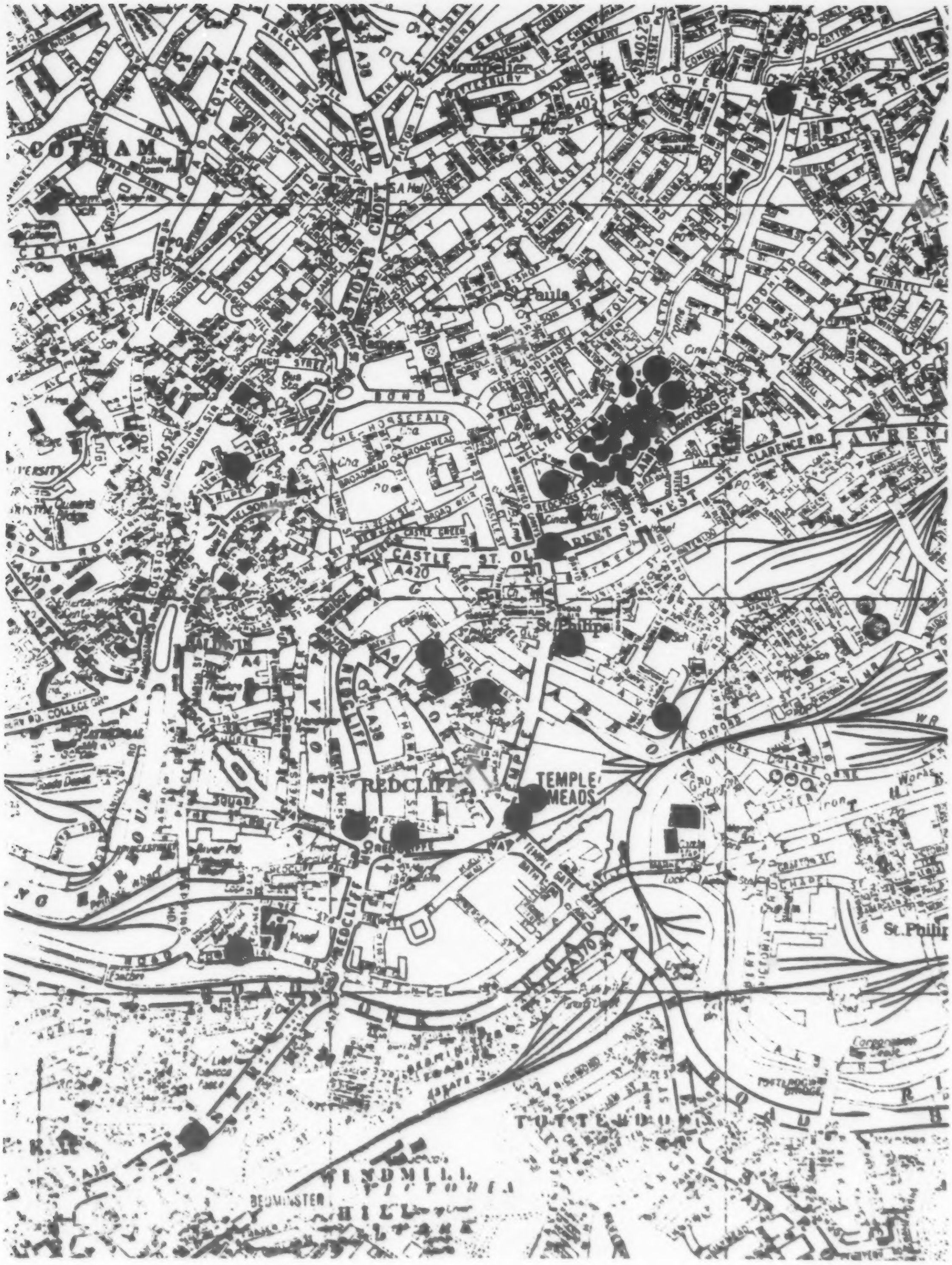

COTHAM
Montpelier
St Pauls
HORSEFAIR
BROADMEAD
CASTLE ST
MARKET ST
WEST ST
CLARENCE RD
St Philips
REDCLIFF
TEMPLE MEADS
TOTTERDOWN
WINDMILL HILL
BEDMINSTER
St Philip

FIG 145

See legend for FIG 142.

(c) Geographia Limited, Crown Copyright Reserved

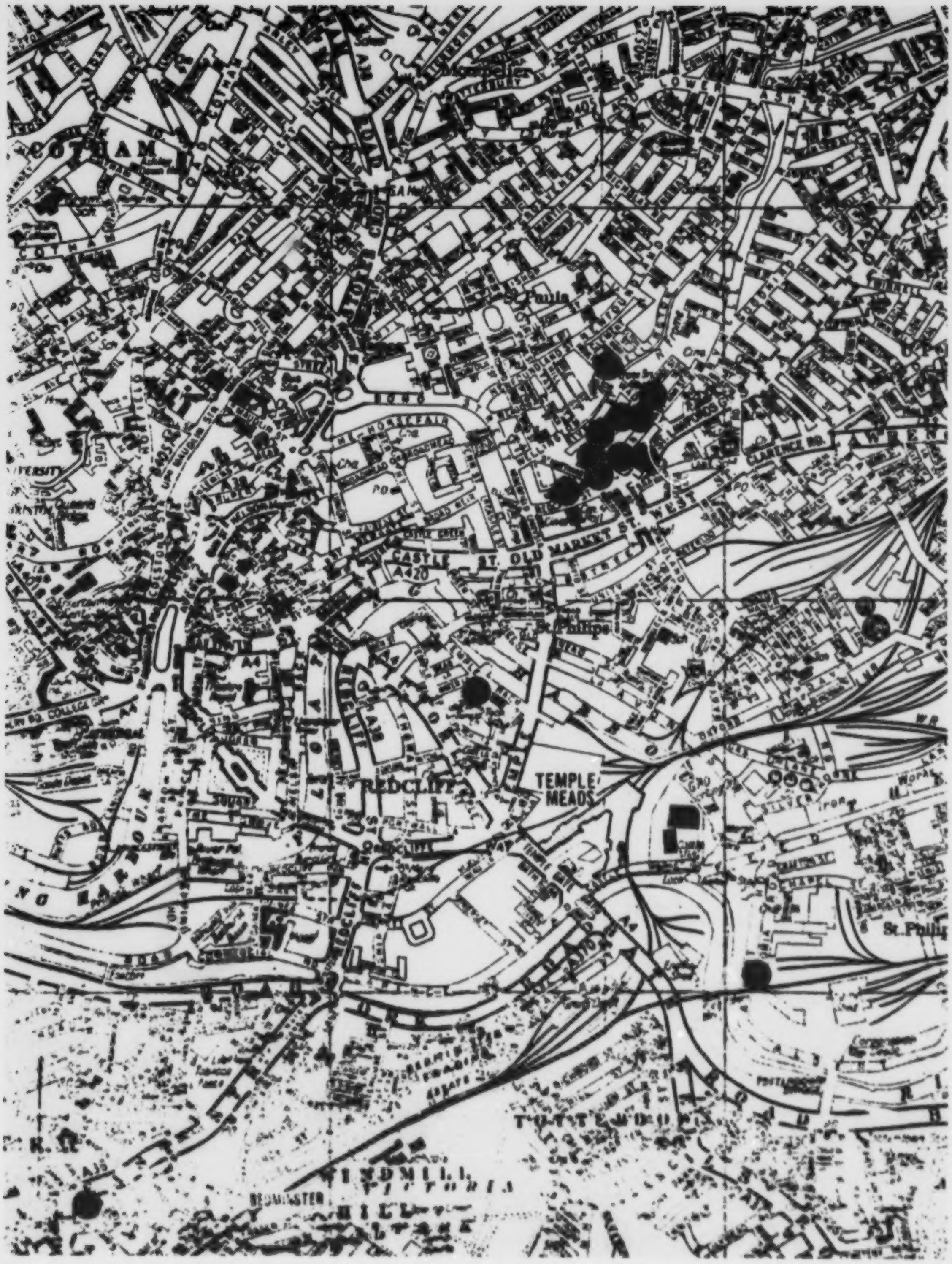
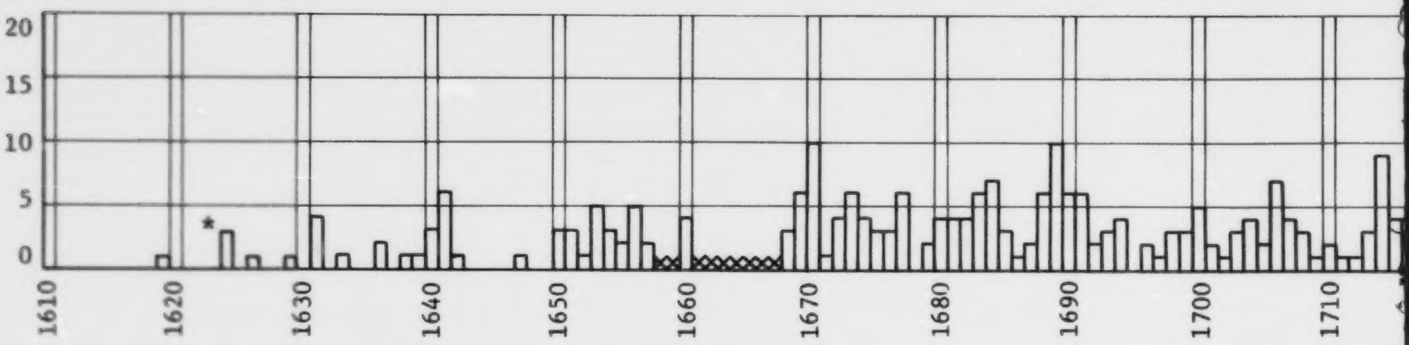
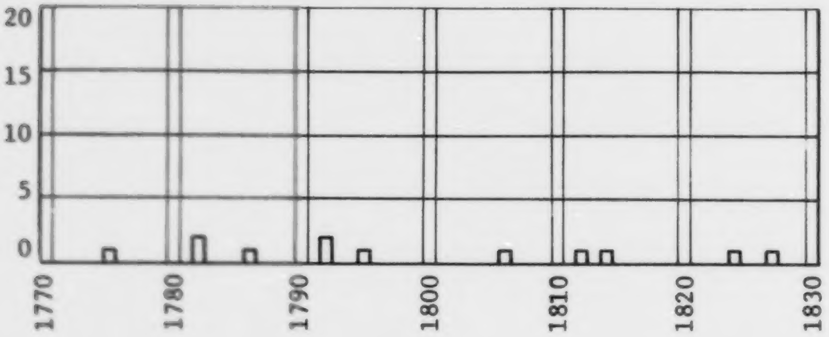

COTHAM
St. Pauls
OLD MARKET ST.
CASTLE ST.
WEST ST.
CLARENCE RD.
St. Philips
REDCLIFF
TEMPLE MEADS
St. Philip
TOTTERDOWN
WINDMILL HILL
VICTORIA PARK
BEDMINSTER

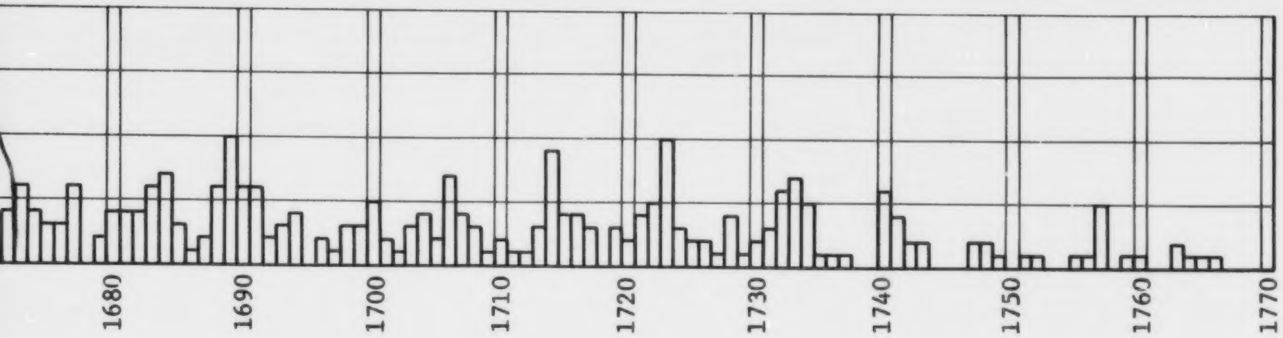
FIG 146

Pipemaker apprentices taken in Bristol between 1619, when the first such apprentice is recorded, and 1827, when the last such entry occurs. Apprentice records for the years 1658-59 and 1661-67 - those marked with a cross on the chart - are lost.



* one apprentice, Alexander Cherrington I, was apprenticed at an unknown date subseque

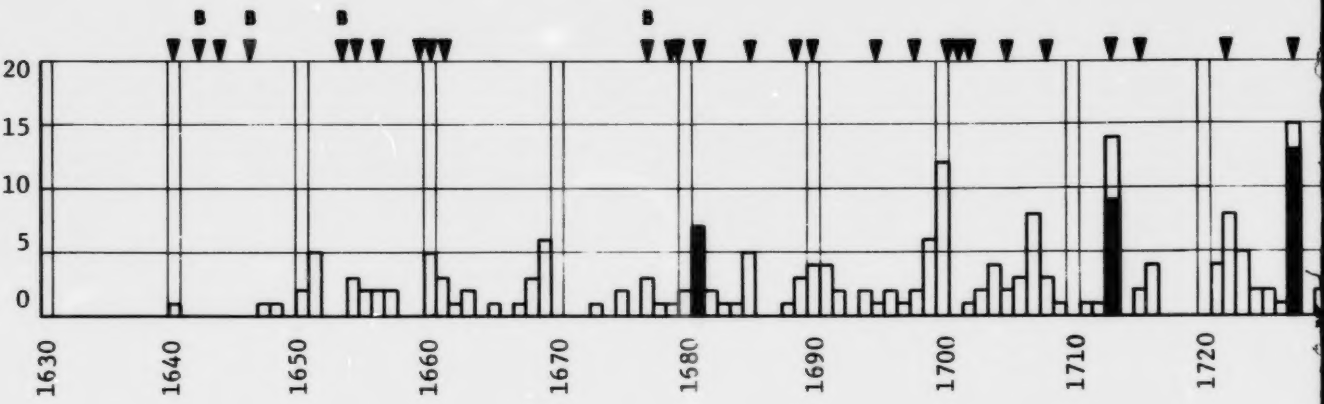


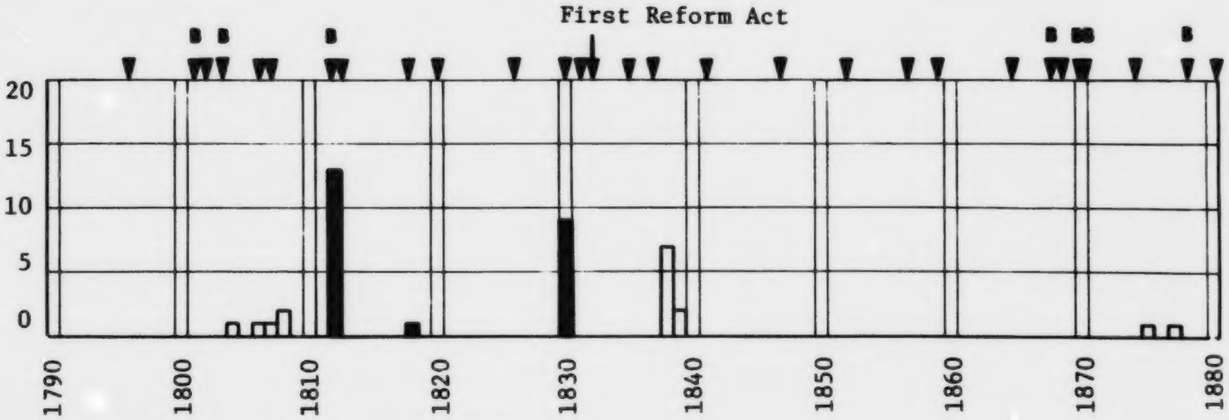


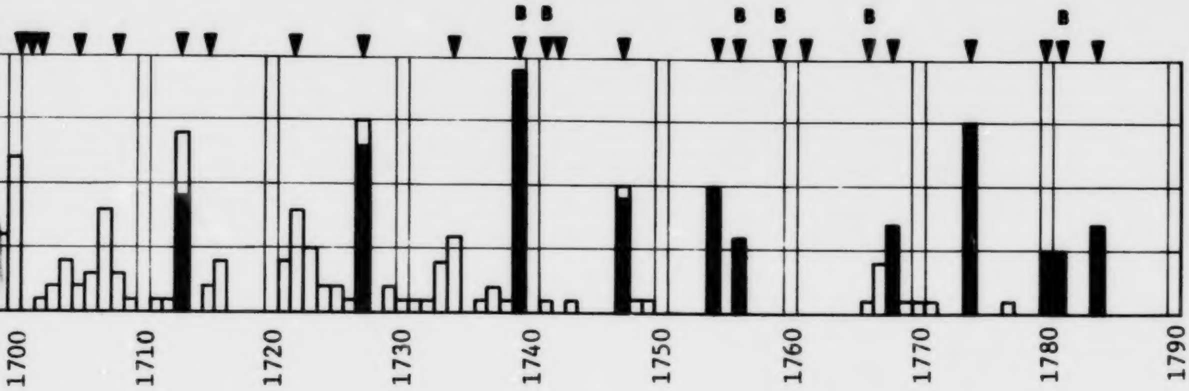
apprenticed at an unknown date subsequent to 1622

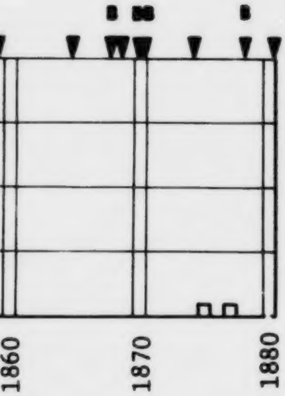
FIG 147

Freemen pipemakers recorded in the Bristol Burgess Rolls between 1640, when the first such entry appears, and 1877, when the last such is recorded. Arrows above date axis indicate elections; the letter B beside some of these arrows indicates a by-election. Pipemakers who took their freedom immediately prior to an election are indicated by a solid part of the bar: from this, and from the progressive tendency beginning in the early C18 for freedom to be taken only in election years, the disintegration of freedom as a meaningful craft regulation can be seen.


B
B
B
B
20
15
10
5
0
1630
1640
1650
1660
1670
1680
1690
1700
1710
1720


First Reform Act
B
B
B
B
B
B
20
15
10
5
0
1790
1800
1810
1820
1830
1840
1850
1860
1870
1880


B
B
B
B
B
B
1700
1710
1720
1730
1740
1750
1760
1770
1780
1790


B
BB
B
1860
1870
1880

FIGS 148a-148b

Maps showing Bristol parishes, FIG 148b showing the seven central parishes at a larger scale. The heavy broken line in FIG 148a indicates the city limits prior to 1835 and the thin continuous lines the parish boundaries; both are taken from Ashmead's 1828 plan. The thin broken line marks the limit of the built-up area on Millerd's 1673 plan (cf FIG 172) (from Ralph and Williams 1968: facing title-page).

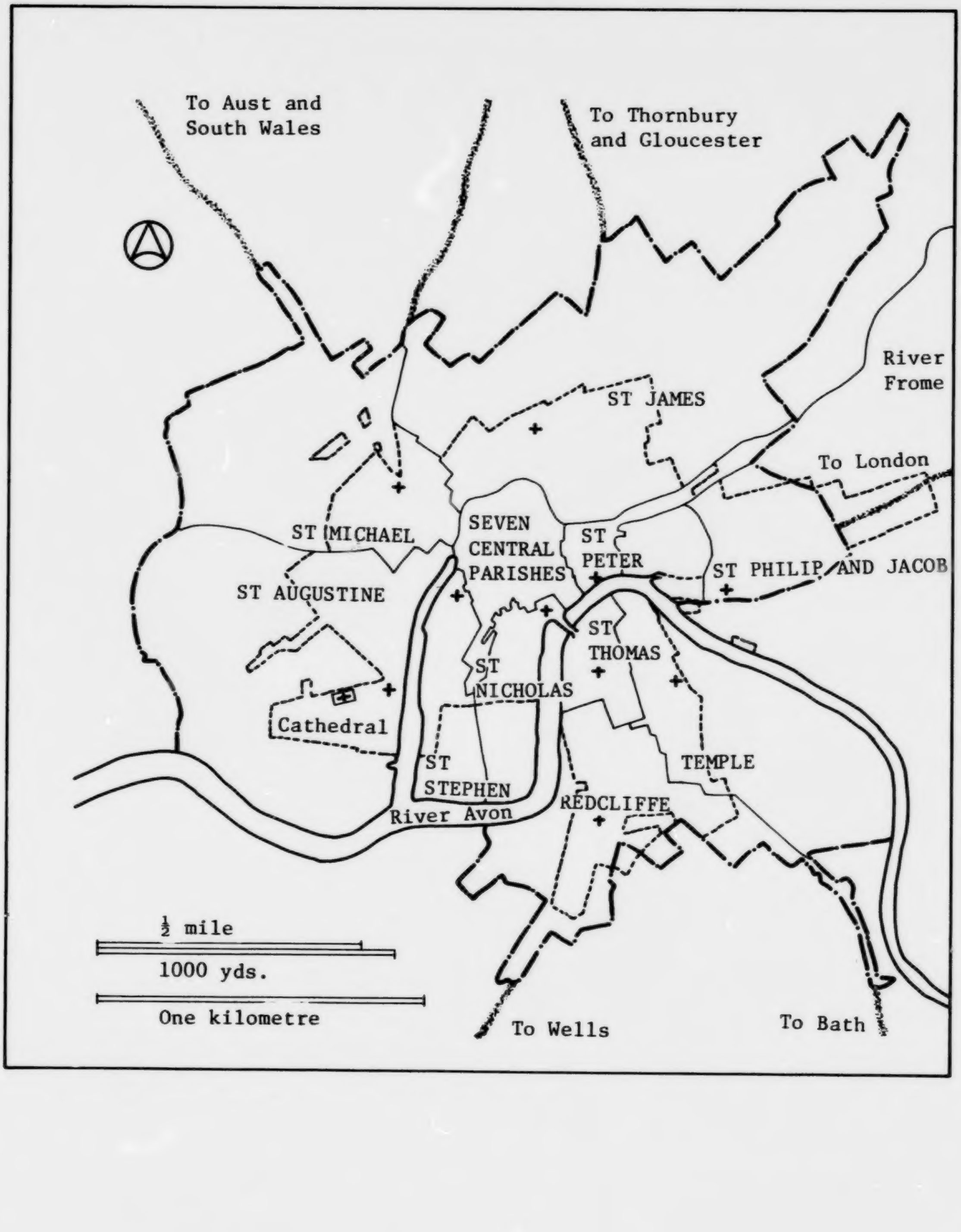

To Aust and South Wales
To Thornbury and Gloucester
River Frome
ST JAMES
To London
ST MICHAEL
SEVEN CENTRAL PARISHES
ST PETER
ST PHILIP AND JACOB
ST AUGUSTINE
ST THOMAS
ST NICHOLAS
Cathedral
ST STEPHEN
TEMPLE
REDCLIFFE
River Avon
½ mile
1000 yds.
One kilometre
To Wells
To Bath

FIG 148b

The seven central parishes at a larger scale (see FIG 148a) (from Ralph and Williams 1968: facing title-page).

1719

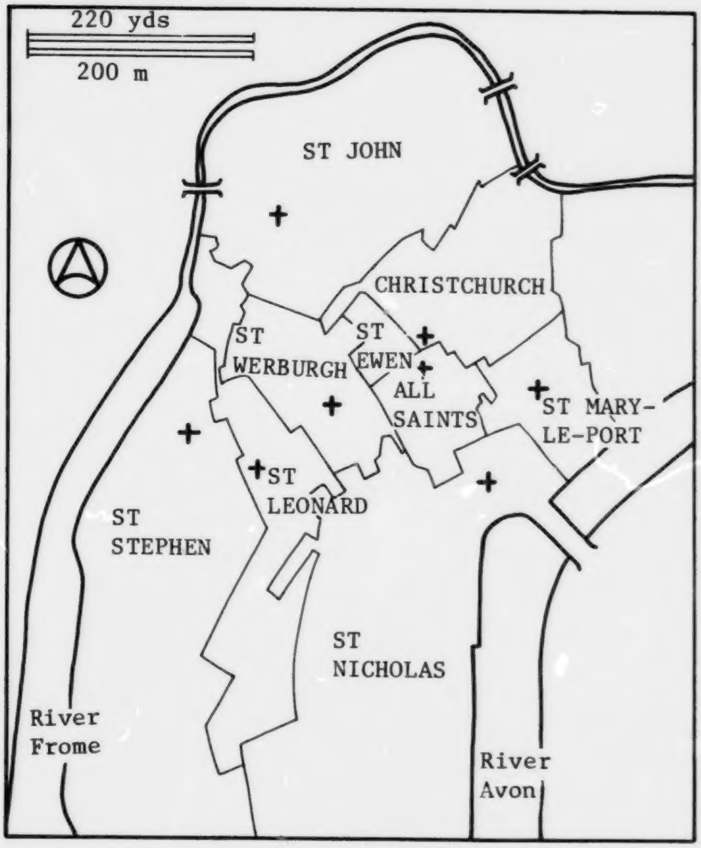

220 yds
200 m
ST JOHN
CHRISTCHURCH
ST WERBURGH
ST EWEN
ALL SAINTS
ST MARY-LE-PORT
ST STEPHEN
ST LEONARD
ST NICHOLAS
River Frome
River Avon

FIG 149

Host St, Bristol (up to ca.1800 called Horse St) looking SW from its commencement at Narrow Lewin's Mead as it climbs towards Colston St. Christmas Steps run up to Colston St at right. (For a photograph of Host St probably taken in the 1840s and looking in the same direction as this illustration but from a point approximately in the mid-distance, see Winstone 1970a: pl 56.)

FIG 150

"Pipemakers' Arms", Albert St, St Philip's Marsh, Bristol. This name is first applied to this tavern in 1880, its landlord Samuel Rich, who came from a local potting family, being briefly recorded as a pipemaker 1879-81. The property is of some age, as under the name Avon Cottage it appears on Ashmead's 1826 plan (FIG 151.)

FIG 151

Section of Ashmead's 1828 _Plan of the city of Bristol and its suburbs_ showing western part of St Philip's Marsh and Avon Cottage, later the "Pipemakers' Arms" on Albert St (FIG 150).

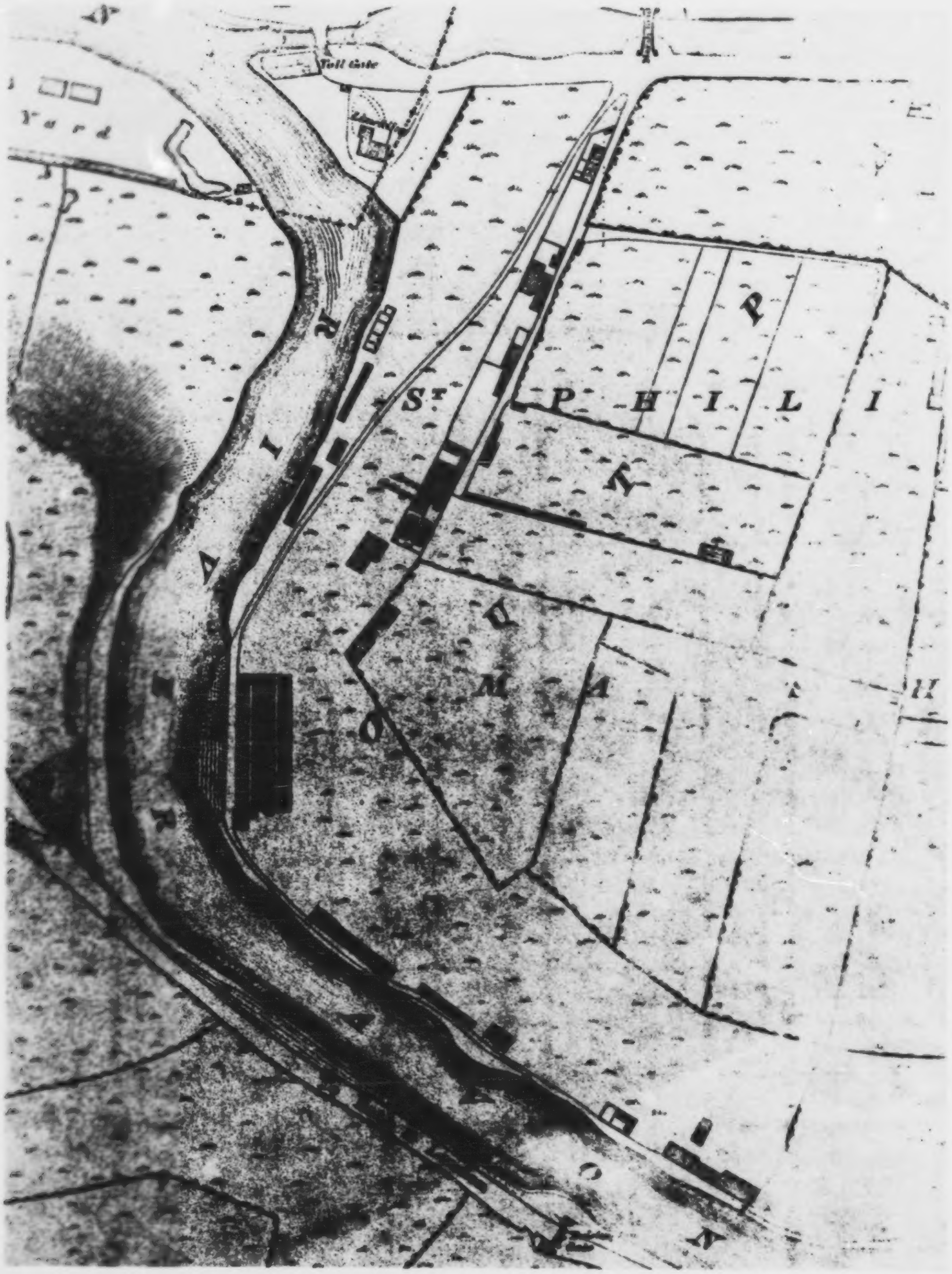

Yard
Toll Gate
St. P H I L I P
M A

FIG 152*

Map of SW England and South Wales showing the distribution of Ham Green medieval - probably C12-C13 - ware (open circles) and a first-half-of-the-C18 lead glazed slip-decorated Staffordshire-like earthenware manufactured in Bristol (solid circles). The open diamond marks the Ham Green kiln site. The dotted lines in mid-Somerset and mid-Gloucestershire indicate possible approximate boundaries of distribtuion of Ham Green Ware to the SW and NE of Bristol respectively: these are based on the negative evidence of no Ham Green ware being known from Taunton (the solid circle in SW Somerset) and Cirencester (the solid circle in east Gloucestershire) though widespread distribution behind these lines is indicated. The broken line in mid-Gloucestershire marks a similar possible boundary for the northern distribution of the slipware: none occurs at Gloucester (the open circle north of the line), though it is known as far north from Bristol as Stroud (solid circle south of the line).

* FIGS 152-55 and 159 show the pre-April 1974 county boundaries of England and Wales. In FIGS 152-54 and 159 the solid line outlines the 14 counties within which a survey of museum pipe-collections was undertaken (see p. 592 and n. 49).

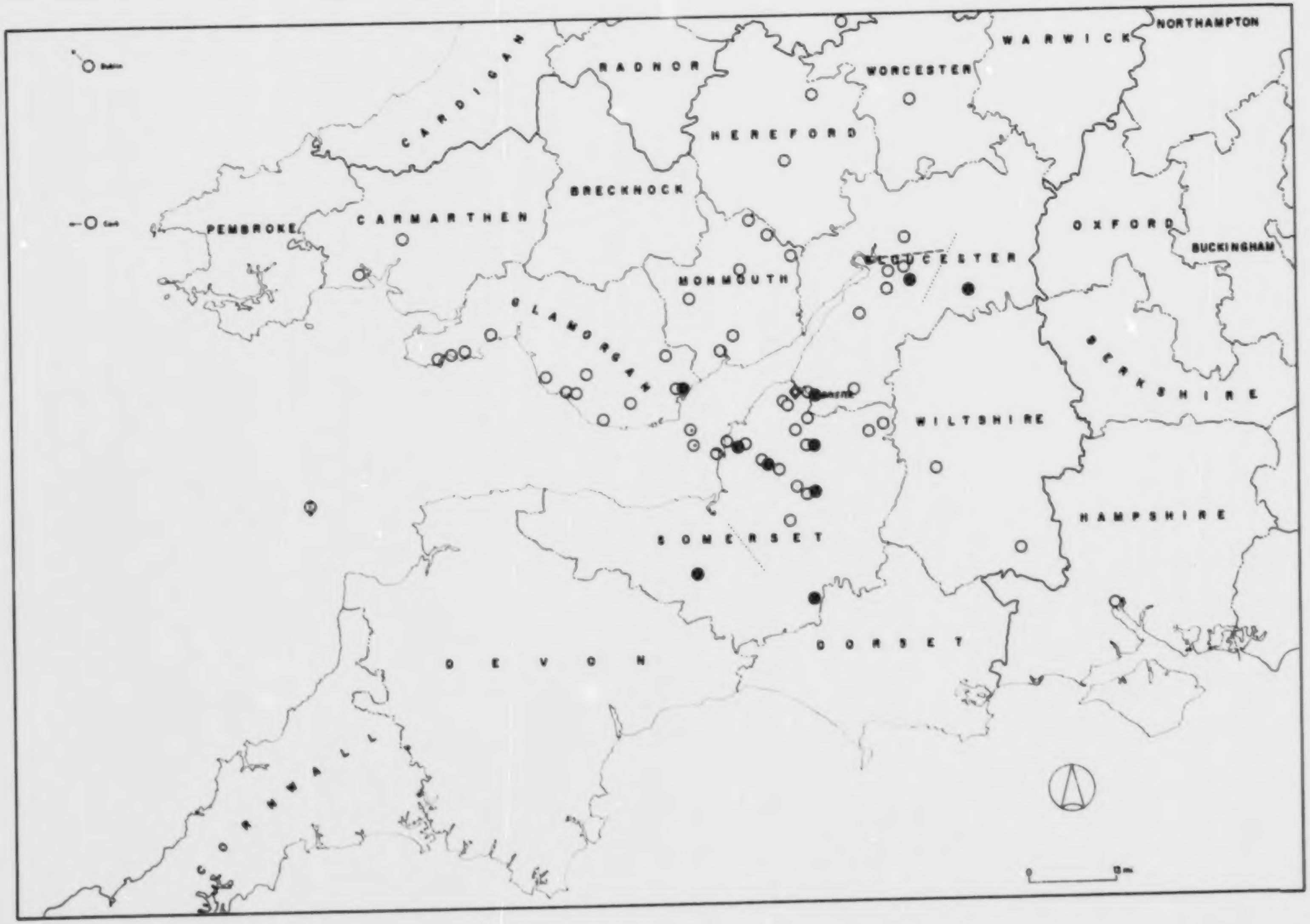

Dublin
Cork
NORTHAMPTON
WARWICK
WORCESTER
RADNOR
CARDIGAN
HEREFORD
BRECKNOCK
PEMBROKE
CARMARTHEN
OXFORD
BUCKINGHAM
GLOUCESTER
MONMOUTH
GLAMORGAN
BERKSHIRE
WILTSHIRE
HAMPSHIRE
SOMERSET
DORSET
DEVON
CORNWALL
0
10m

FIG 153

Map of SW England and South Wales showing distribution of pipes attributable to Richard Berryman (open circles) and Edward Lewis I (solid circles).

1727

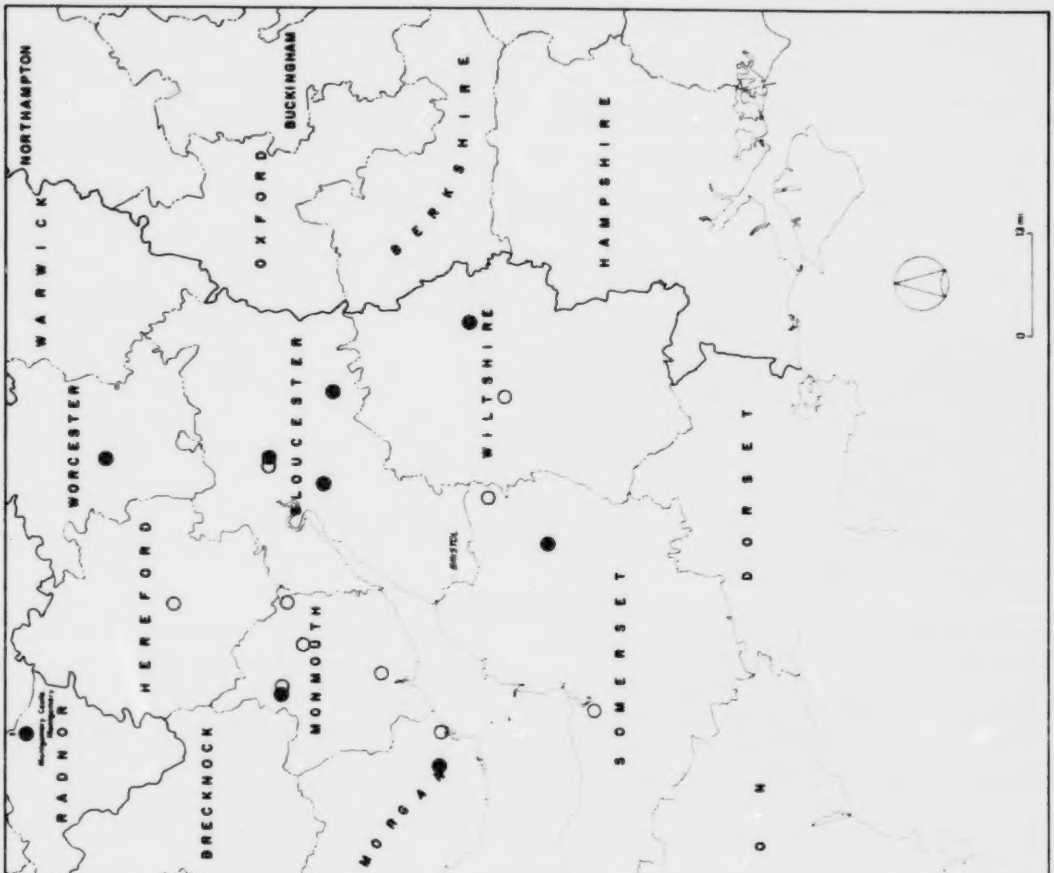

NORTHAMPTON
WARWICK
BUCKINGHAM
OXFORD
BERKSHIRE
HAMPSHIRE
WORCESTER
GLOUCESTER
WILTSHIRE
HEREFORD
RADNOR
MONMOUTH
BRISTOL
SOMERSET
DORSET
BRECKNOCK
GLAMORGAN
DEVON
CARDIGAN
CARMARTHEN
PEMBROKE
CORNWALL
0
12 mi

FIG 154

Map of SW England and South Wales showing distribution of pipes attributable to Philip Edwards I and II (open circles) and Richard Nunney (solid circles).

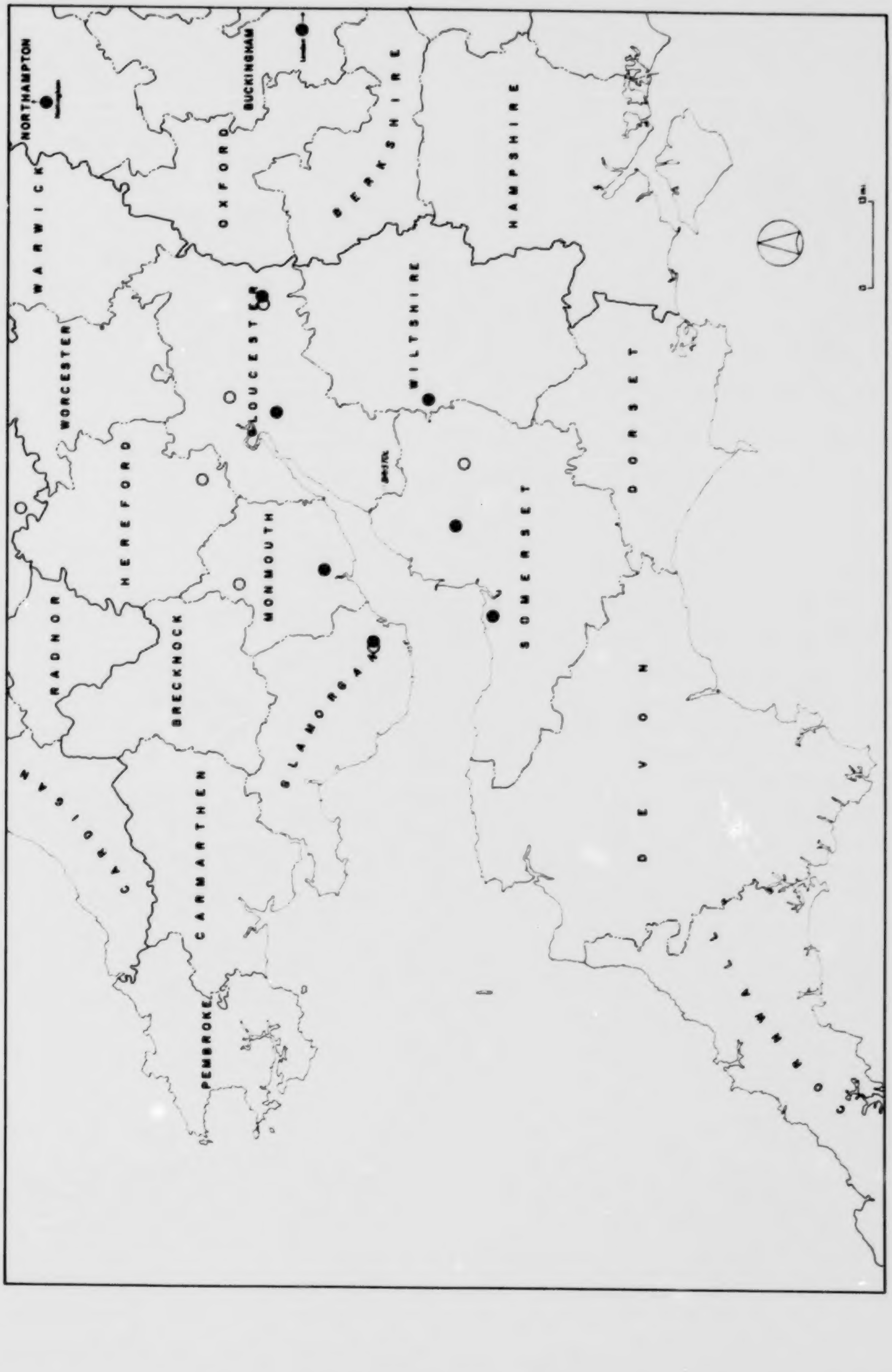

NORTHAMPTON
BUCKINGHAM
WARWICK
OXFORD
BERKSHIRE
HAMPSHIRE
WORCESTER
GLOUCESTER
WILTSHIRE
HEREFORD
BRISTOL
SOMERSET
DORSET
RADNOR
BRECKNOCK
MONMOUTH
GLAMORGAN
CARDIGAN
CARMARTHEN
PEMBROKE
DEVON
CORNWALL
0
10 mi

FIG 155

Map showing extend of London-Home Counties type 9 pipe manufacture (stippling), West Country type 9 pipe manufacture (coarse hatching), and South-West type 10 pipe manufacture (fine hatching). Question-marks denote areas where boundaries are uncertain. (Poole, where current excavations show that in earlier C18 contexts the vast majority of pipes found are of London-Home Counties type 9 form, lies in SE Dorset. At present it is uncertain whether this preponderance represents products of a local industry - in which case the limits of London-Home Counties type 9 pipe-production has to be pushed appreciably farther west than the limit shown on this map, the Portsmouth area - or whether it is the result of direct trade from London, presumably a result of the Poole-London pipeclay trade, in which case one would have to presume little or no native Poole pipemaking industry at this time (see p.616.)

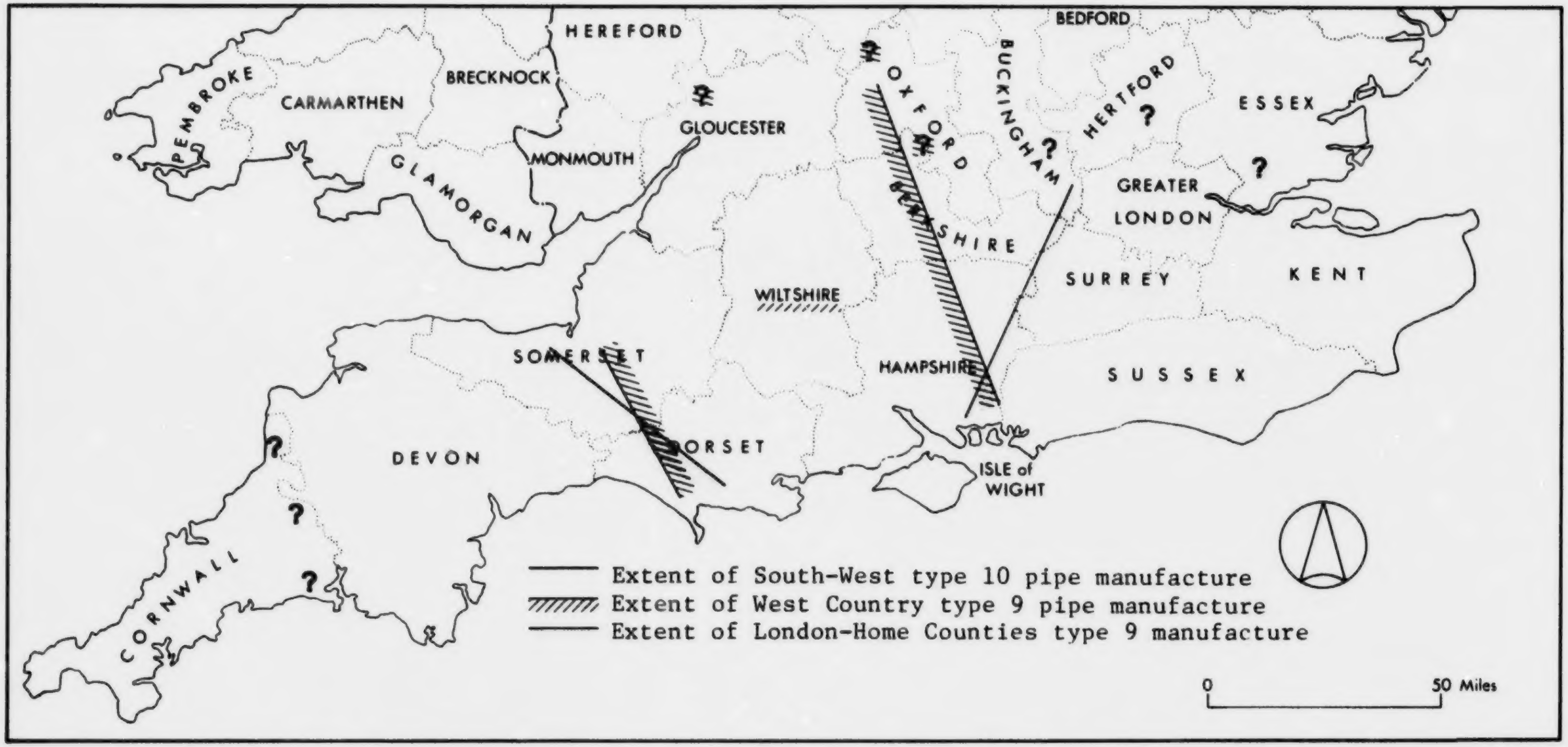
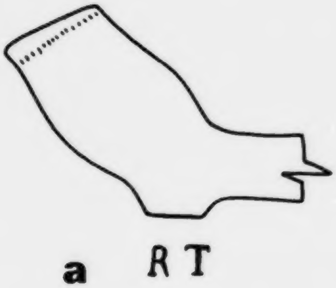
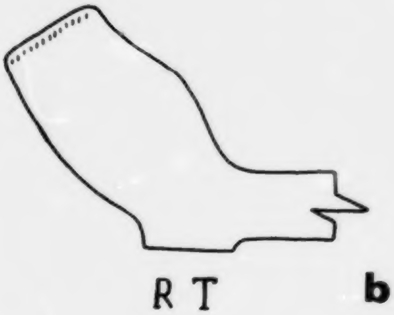

HEREFORD
BEDFORD
PEMBROKE
CARMARTHEN
BRECKNOCK
GLOUCESTER
MONMOUTH
GLAMORGAN
OXFORD
BUCKINGHAM
HERTFORD
ESSEX
GREATER LONDON
BERKSHIRE
WILTSHIRE
SURREY
KENT
SOMERSET
HAMPSHIRE
SUSSEX
DEVON
DORSET
ISLE of WIGHT
CORNWALL
?
Extent of South-West type 10 pipe manufacture
Extent of West Country type 9 pipe manufacture
Extent of London-Home Counties type 9 manufacture
0
50 Miles

FIG 156a

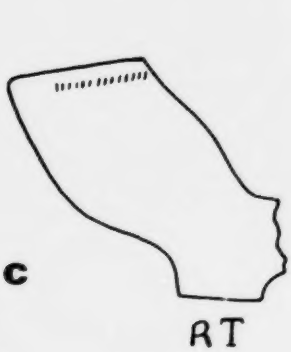
Sequence of pipe-bowls shapes attributable to the Robert Tippet family and covering typologically from ca.1660 to the mid-C18 (Robert Tippet I became free 1660, Robert II 1678, and Robert III 1713).



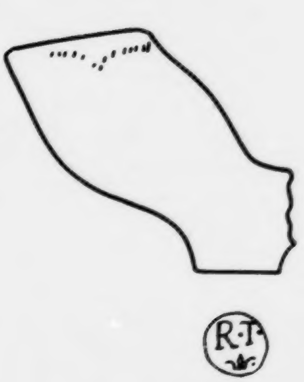
a



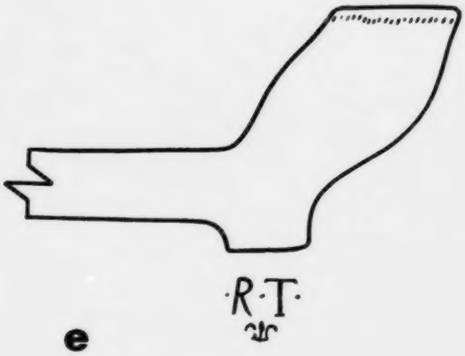
b



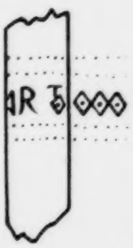
c



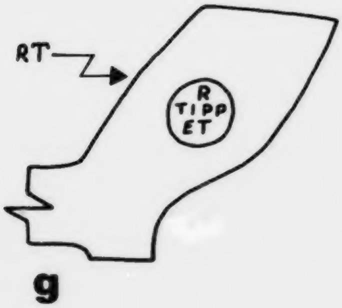
d



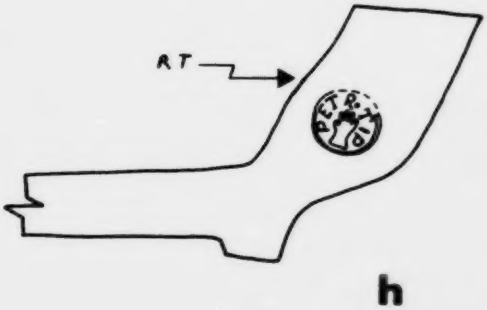
e



f



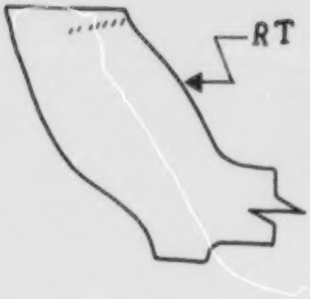
g



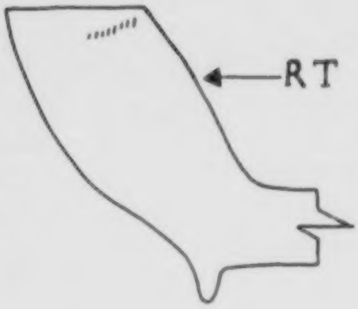
h

FIG 156b

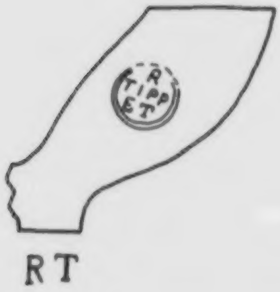
Pipe-bowl shapes attributable to the Robert Tippet family (continued).



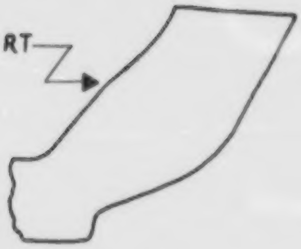
i



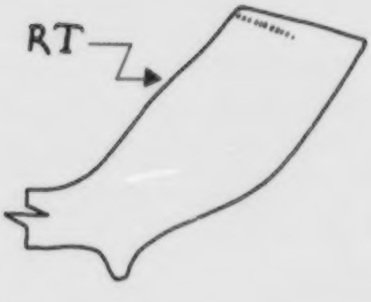
j



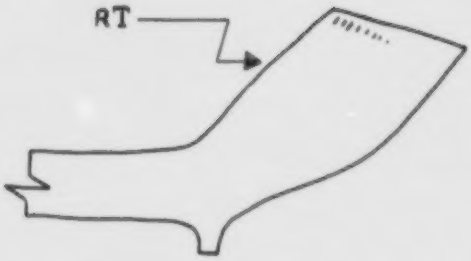
k



l



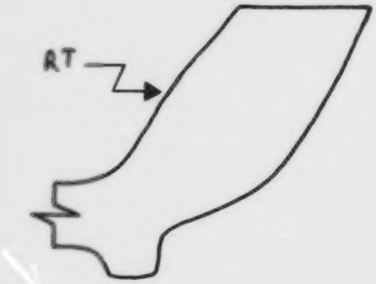
m



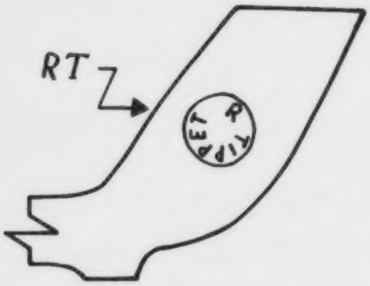
n

FIG 156c

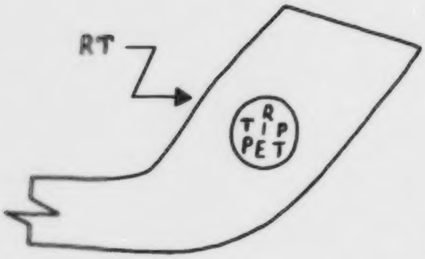
Pipe-bowl shapes attributable to the Robert Tippet family (continued).



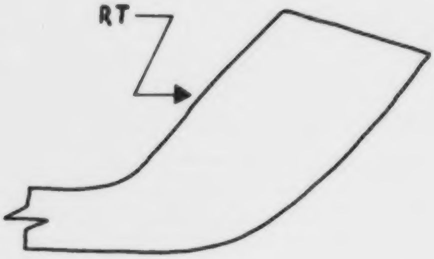
o



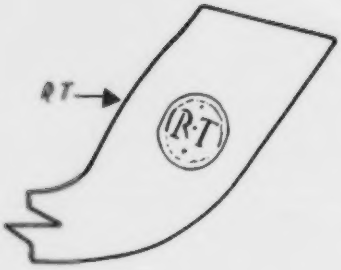
p



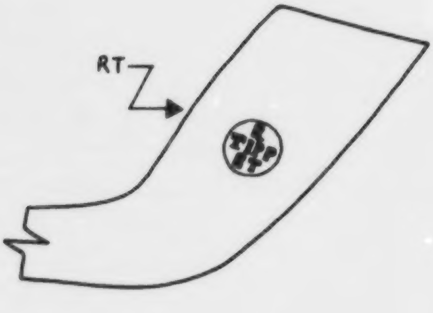
q



r



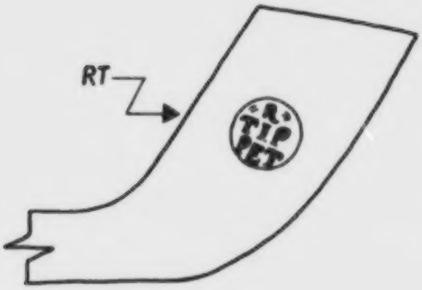
s



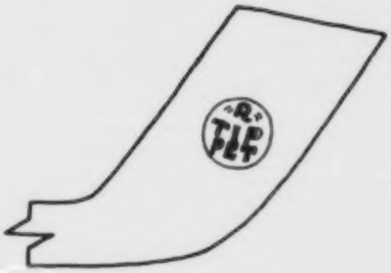
t

FIG 156d

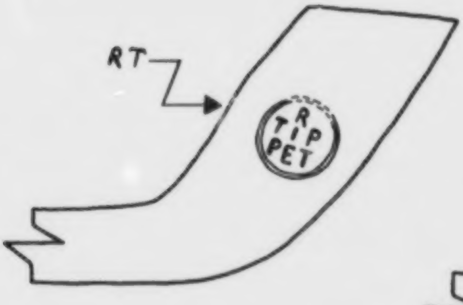
Pipe-bowl shapes attributable to the Robert Tippet family (continued).



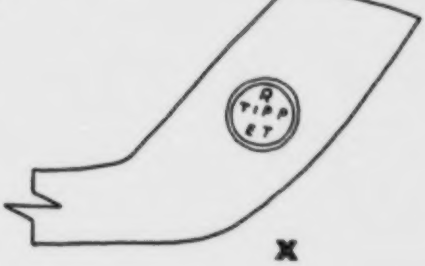
u



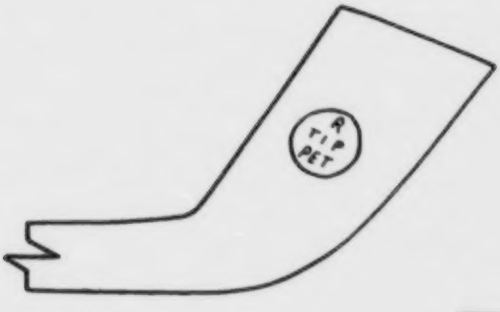
v



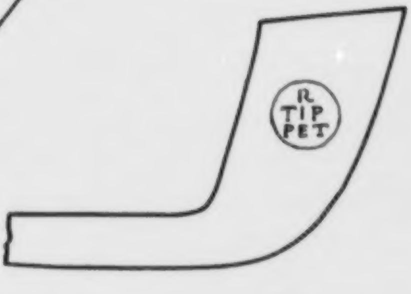
w



x



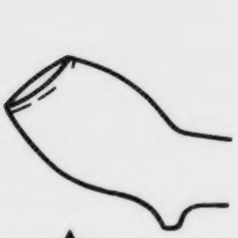
y



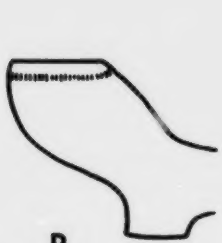
z

FIG 157a

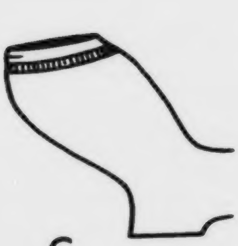
Sequence of pipe-bowl shapes used by Marlborough makers ca.1650-1750 (from Atkinson 1965c: 89 fig 1 and 91 fig 2, rev ed 1969b).



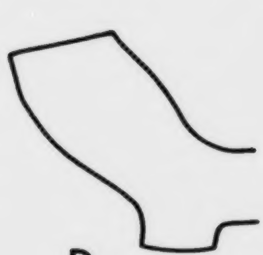
A



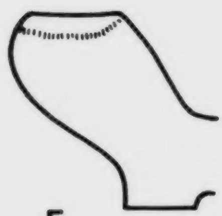
B



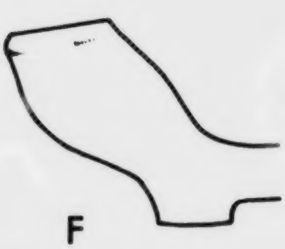
C



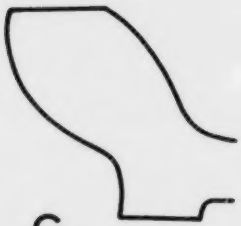
D



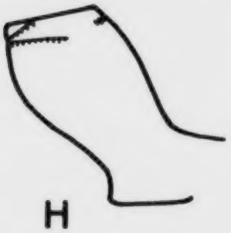
E



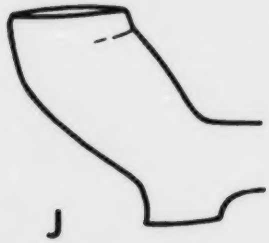
F



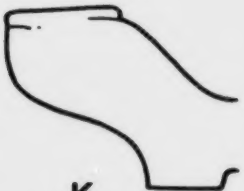
G



H



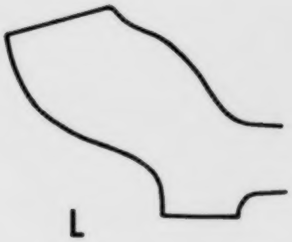
J



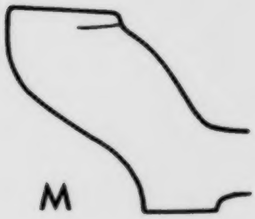
K

FIG 157b

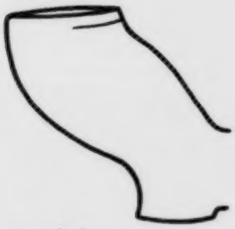
Sequence of pipe-bowl shapes used by Marlborough makers ca.1650-1750 (from Atkinson 1965c: 89 fig 1 and 91 fig 2, rev ed 1969b) (continued).



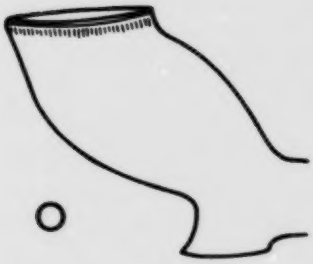
L



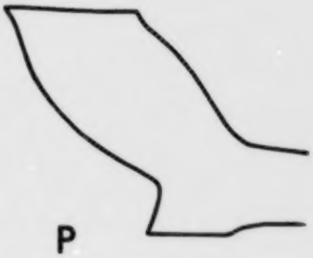
M



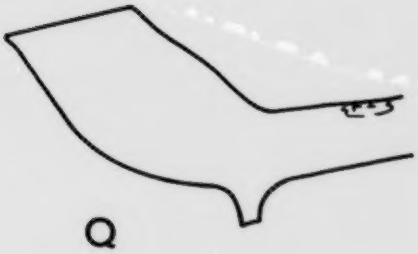
N



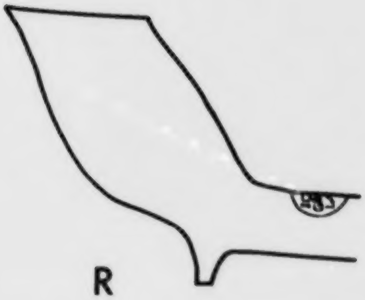
O



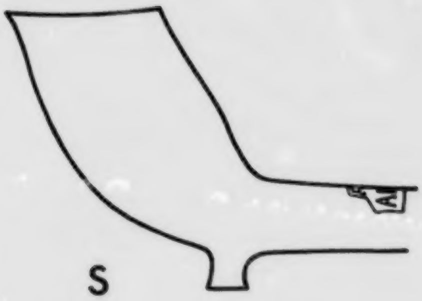
P



Q



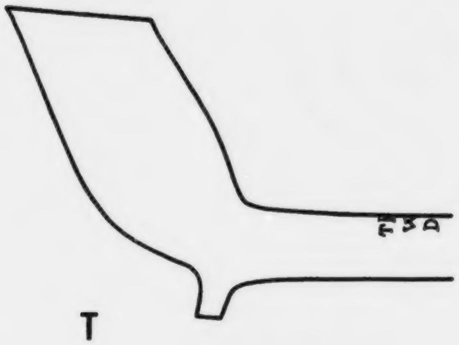
R



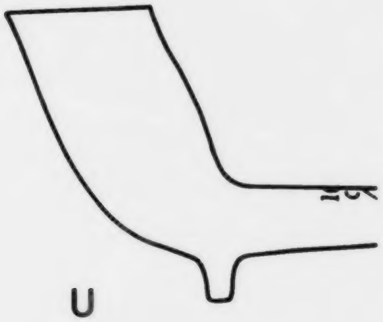
S

FIG 157c

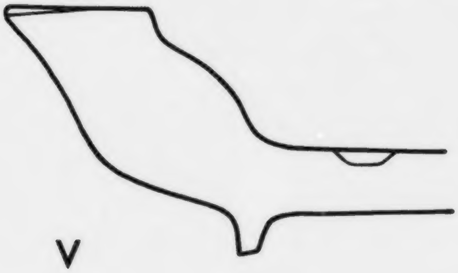
Sequence of pipe-bowl shapes used by Marlborough makers ca.1650-1750 (from Atkinson 1965c: 89 fig 1 and 91 fig 2, rev ed 1969b) (continued).



T



U



V

FIG 158

Three typical London-Home Counties type 9 pipes of the mid-C18 (upper row) and three typical early-mid C18 Dutch pipes (lower row) from the Fortress of Louisbourg, Nova Scotia. Note the salient points of difference between English and Dutch pipes of this period: the larger, less delicate, English bowls; the different profile of the side of the bowl facing the smoker; and the difference between the plane of the bowl rim, which in the English pipes is parallel to the line of the stem and in the Dutch pipes is markedly at an angle sloping away from the smoker. The parallel marks on the bowl of the central Dutch pipe are made by stroke-burnishing with the *glaaspin* (cf FIG 18,v) (National Historic Parks and Sites Branch, Ottawa).

FIG 159

Map of SW England and South Wales showing distribution of pipes attributable to the Ring firm (open circles), the Hawley firm (solid circles), and possibly attributable to the Ring firm (open circles containing a question mark).

1749

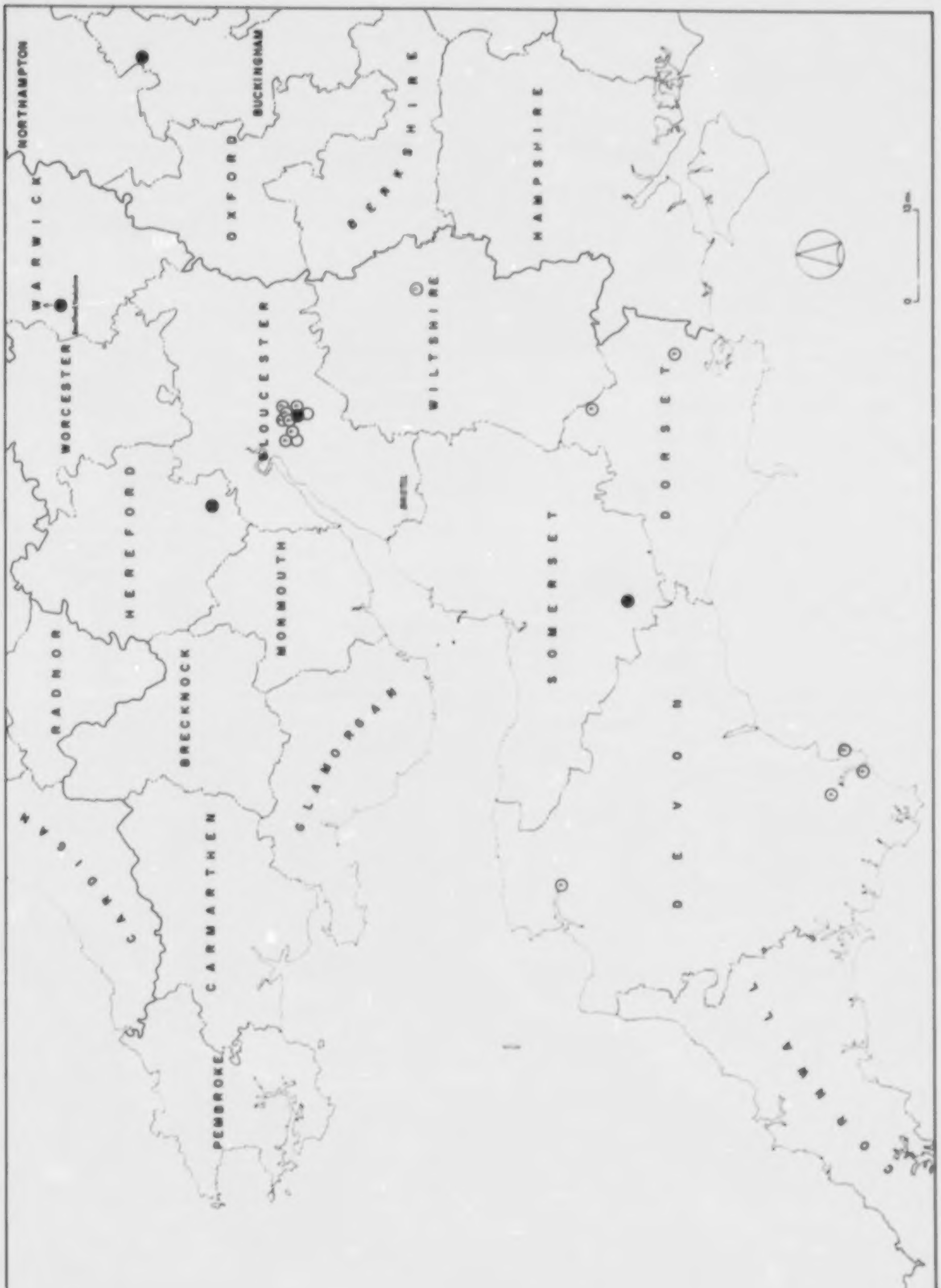
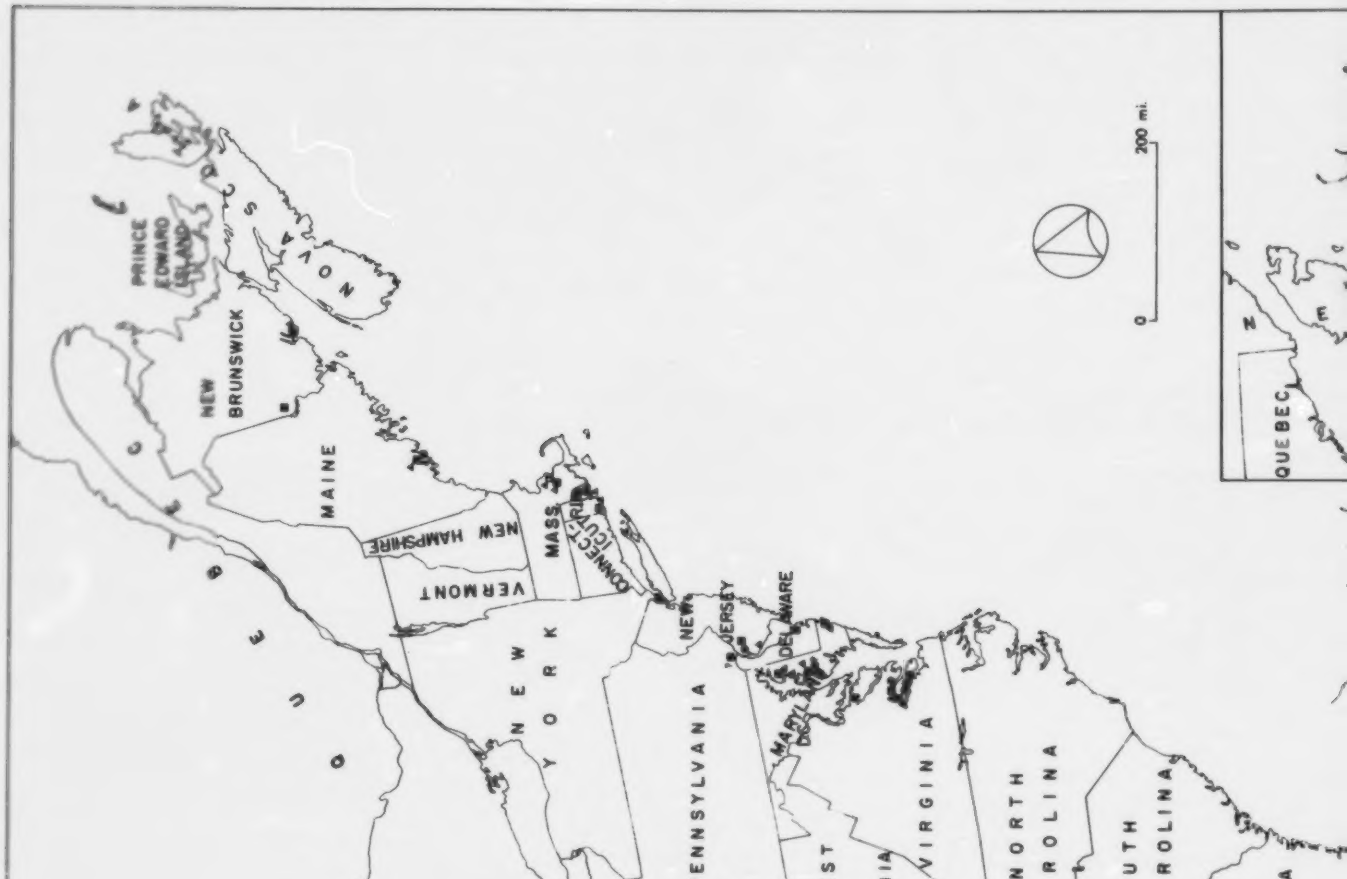

NORTHAMPTON
WARWICK
WORCESTER
OXFORD
BUCKINGHAM
BERKSHIRE
HAMPSHIRE
GLOUCESTER
WILTSHIRE
BRISTOL
HEREFORD
MONMOUTH
RADNOR
BRECKNOCK
GLAMORGAN
CARDIGAN
CARMARTHEN
PEMBROKE
SOMERSET
DORSET
DEVON
CORNWALL
0

FIG 160

Map of eastern North America showing distribution of pipes attributable to James Fox (solid circles), Llewellin Evans (solid squares), and the William Evanses (solid triangles). Question marks indicate uncertain identifications.


QUEBEC
ONTARIO
MICHIGAN
PRINCE EDWARD ISLAND
NOVA SCOTIA
NEW BRUNSWICK
MAINE
NEW HAMPSHIRE
VERMONT
MASS
CONNECTICUT
NEW YORK
NEW JERSEY
DELAWARE
PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
OHIO
INDIANA
ILLINOIS
KENTUCKY
TENNESSEE
ALABAMA
MISSISSIPPI
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOU
0
200 mi.
QUEBEC

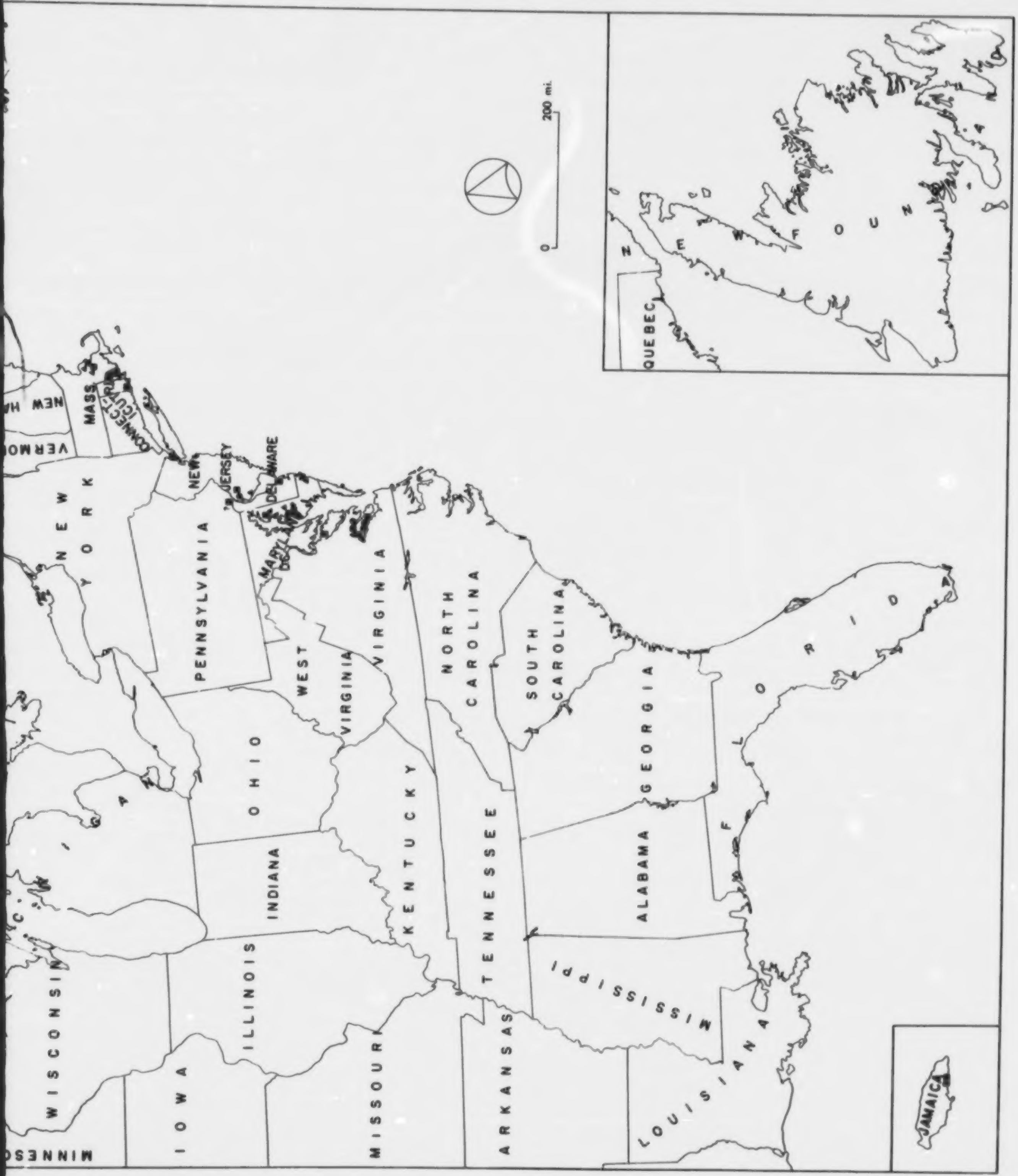
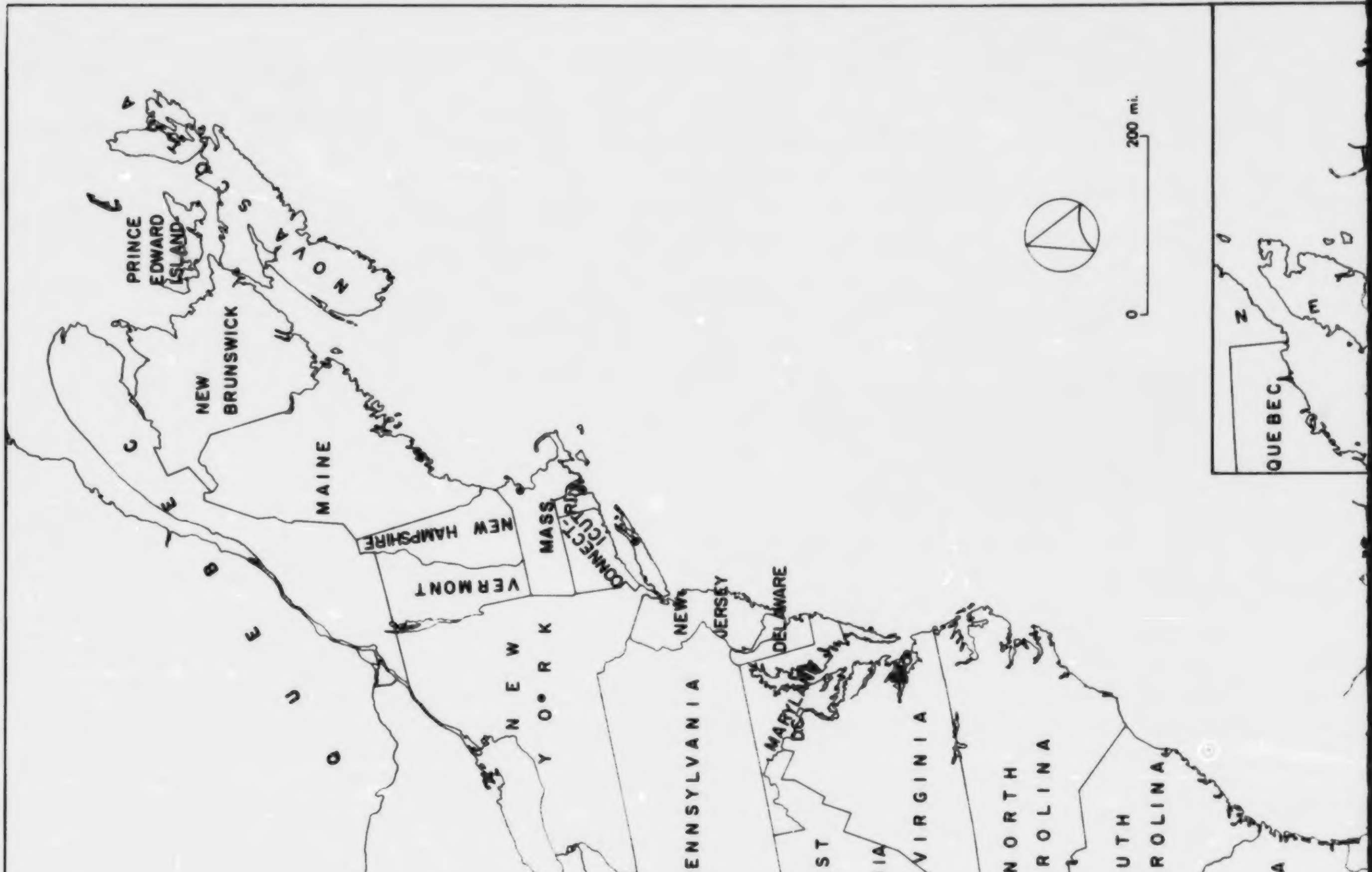
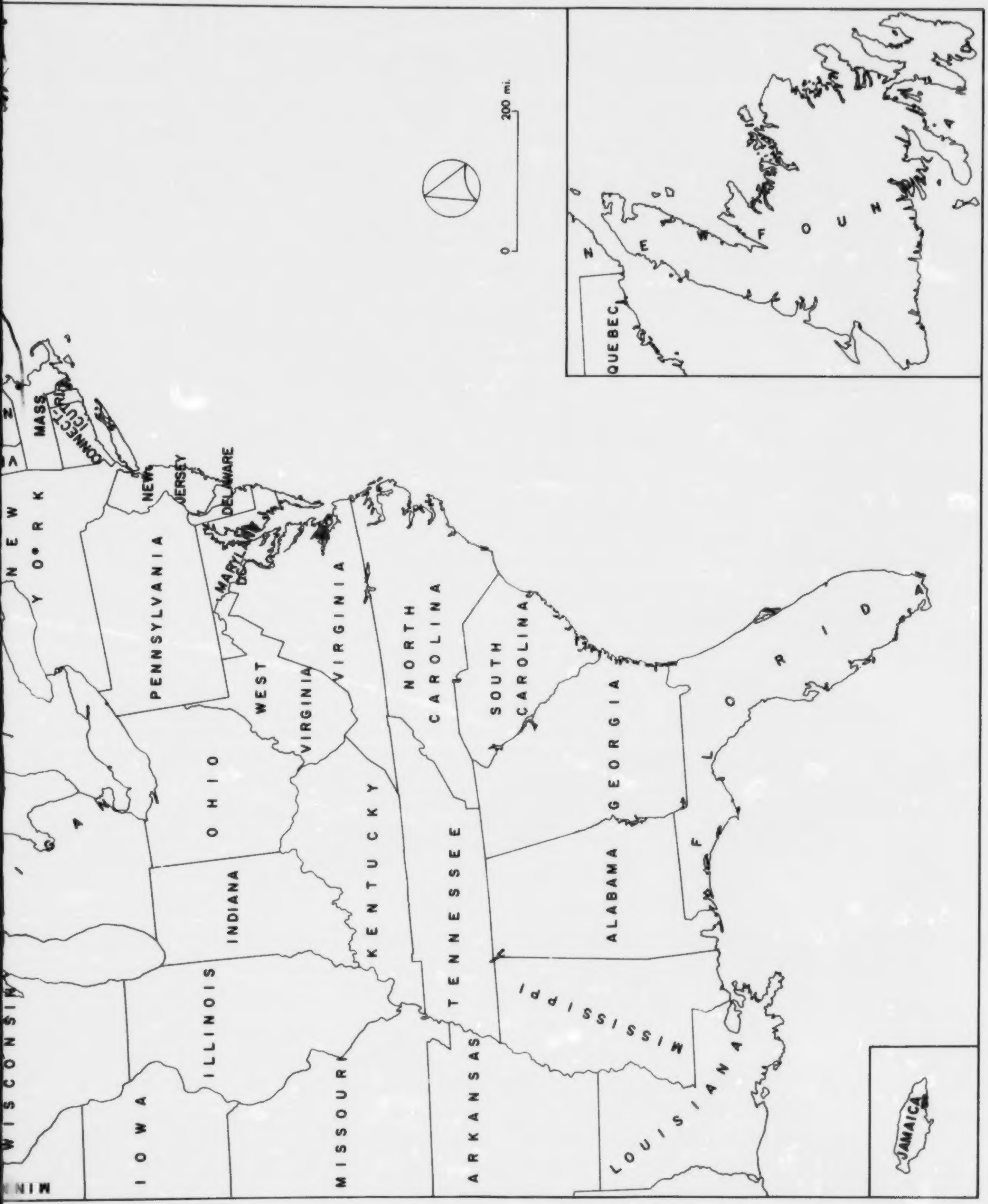

0
200 mi.
N
E W F O U N D L A
QUEBEC
MINNESO
WISCONSIN
MIC.
I G A N
NEW YORK
VERMO
NEW HA
MASS.
CONNECTICUT
R.I.
NEW JERSEY
DELAWARE
PENNSYLVANIA
MARYLAND
OHIO
INDIANA
ILLINOIS
IOWA
MISSOURI
WEST VIRGINIA
VIRGINIA
KENTUCKY
NORTH CAROLINA
SOUTH CAROLINA
TENNESSEE
ARKANSAS
GEORGIA
ALABAMA
MISSISSIPPI
LOUISIANA
FLORIDA
JAMAICA

FIG 161

Map of eastern North America showing distribution of pipes attributable to the Philip Edwardses (solid circles), Richard Nunney (solid squares), Flower Hunt (open circle), James Abbot (open square), and Thomas Monkes (open triangle).


O N T A R I O
Q U E B E C
PRINCE EDWARD ISLAND
N O V A S
NEW BRUNSWICK
MAINE
NEW HAMPSHIRE
VERMONT
MASS
R.I.
CONNECTICUT
N E W Y O R K
NEW JERSEY
DELAWARE
PENNSYLVANIA
MARYLAND
D.C.
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
M I C H I G A N
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUIS
0
200 mi.
QUEBEC
N E

1753

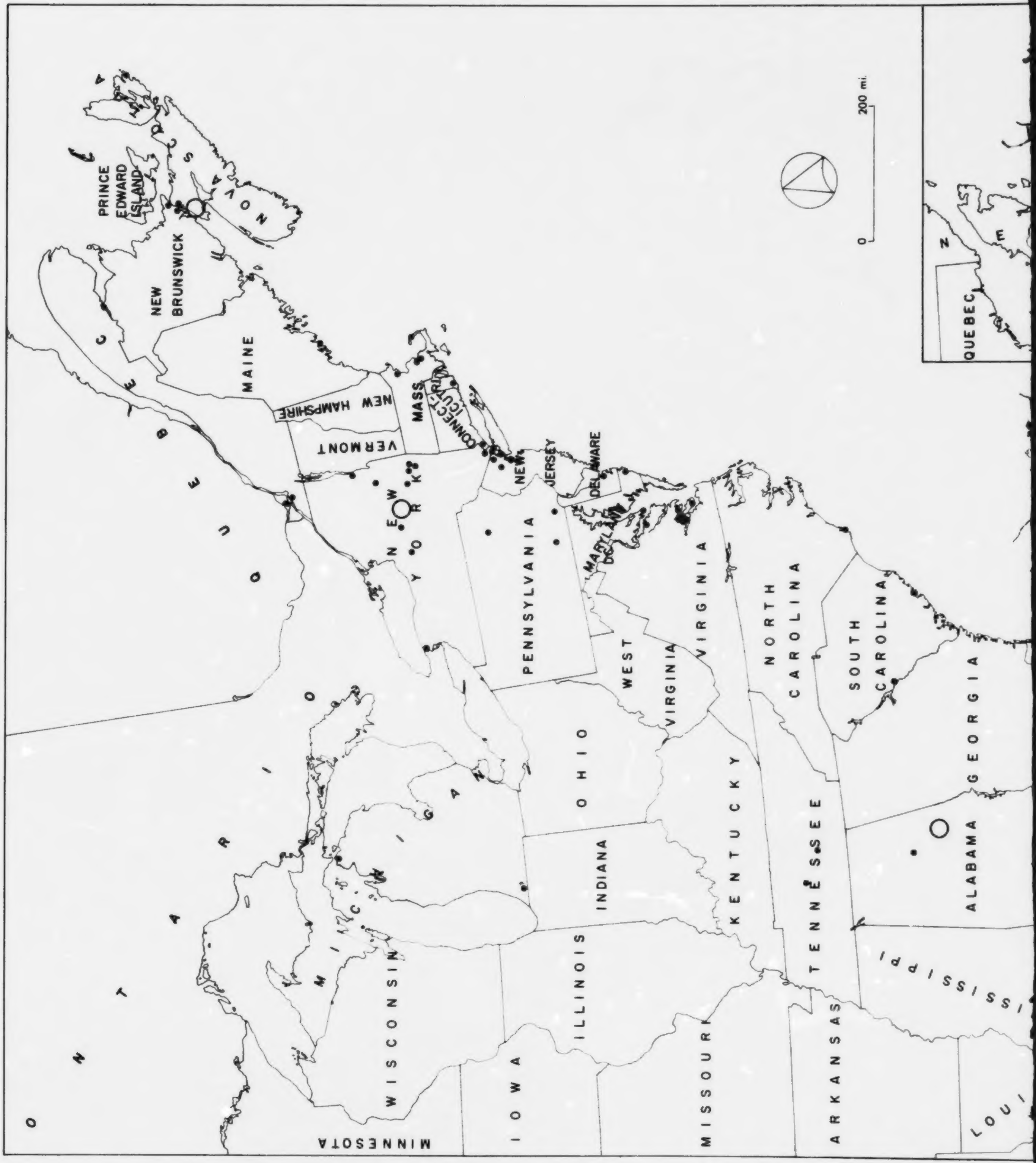


200 mi.
0
NEWFOUNDLAND
QUEBEC
JAMAICA
N
V
MASS
CONNECTICUT
R.I.
NEW YORK
NEW JERSEY
DELAWARE
MARYLAND
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
OHIO
INDIANA
KENTUCKY
TENNESSEE
ALABAMA
MISSISSIPPI
LOUISIANA
ARKANSAS
MISSOURI
ILLINOIS
IOWA
WISCONSIN
MINN

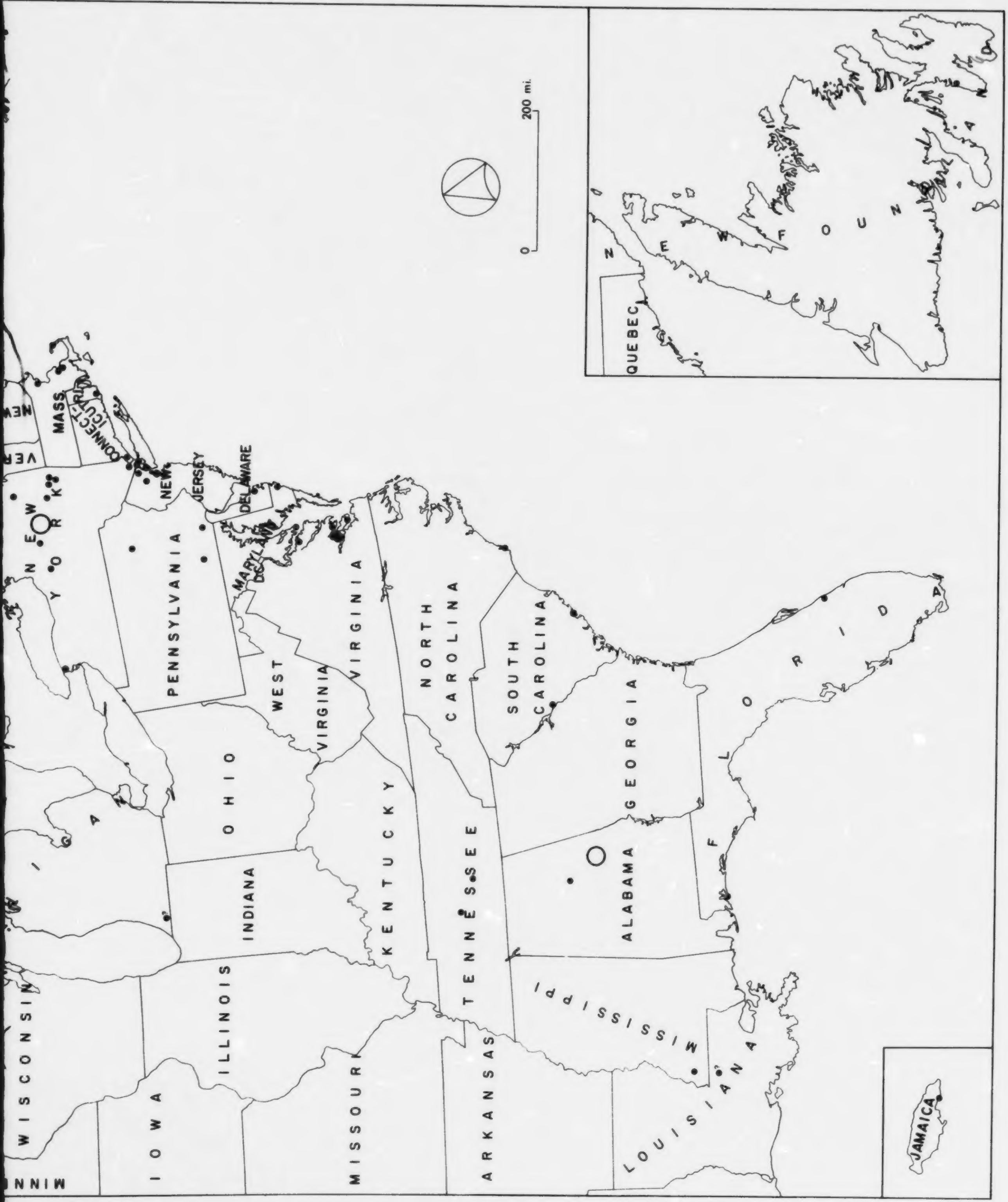
FIG 162

Map of eastern North America showing distribution of pipes attributable to the Robert Tippets. The large open circles indicate general areas within which it is recorded such pipes have been found: Acadian settlements in Nova Scotia; various European and Onondaga, Oneida, and Mohawk Indian sites in central New York state (i.e. the Mohawk Valley); and Indian sites in the Tallapoosa area, east-central Alabama. The question marks beside two find-spots, one in Michigan and one in Mississippi, relate to an ambiguous reference in which it is unclear whether Robert Tippet pipes were found at one site or the other.

1755


ONTARIO
QUEBEC
NOVA SCOTIA
PRINCE EDWARD ISLAND
NEW BRUNSWICK
MAINE
NEW HAMPSHIRE
VERMONT
MASS
CONNECTICUT
RI
NEW YORK
NEW JERSEY
DELAWARE
PENNSYLVANIA
MARYLAND
DC
VIRGINIA
WEST VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
ISSISSI
LOUI
0
200 mi.
QUEBEC

1755



NEWFOUNDLAND
QUEBEC
200 mi.
0
NEW YORK
VER
NEW
MASS
R.I.
CONNECTICUT
NEW JERSEY
DELAWARE
MARYLAND
D.C.
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
ALABAMA
MISSISSIPPI
LOUISIANA
ARKANSAS
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MISSOURI
IOWA
WISCONSIN
MINN
MICHIGAN
JAMAICA

FIG 163

Map of eastern North America showing distribution of pipes attributable to miscellaneous Bristol makers. The solid circles represent in this case sites, the key to their numbering and the identifiable makers whose products were found there being as follows:

1) Placentia, Newfoundland - Henry Edwards, Henry Hoar;

2) Louisbourg, Nova-Scotia - Edward Reed;

3) Beaubassin, Nova-Scotia - Thomas Owen (I, II, or III);

4) Fort Beauséjour, New Brunswick - George Ebbery, William Nicholas;

5) Pemaquid, Maine - William Foord;

6) Saint Francis Xavier IV, Caughnawaga, Quebec province - Edward Reed;

7 Schuyler Flatts, New York state - Thomas Grant;

8) Douw Point, New York state - George Viner;

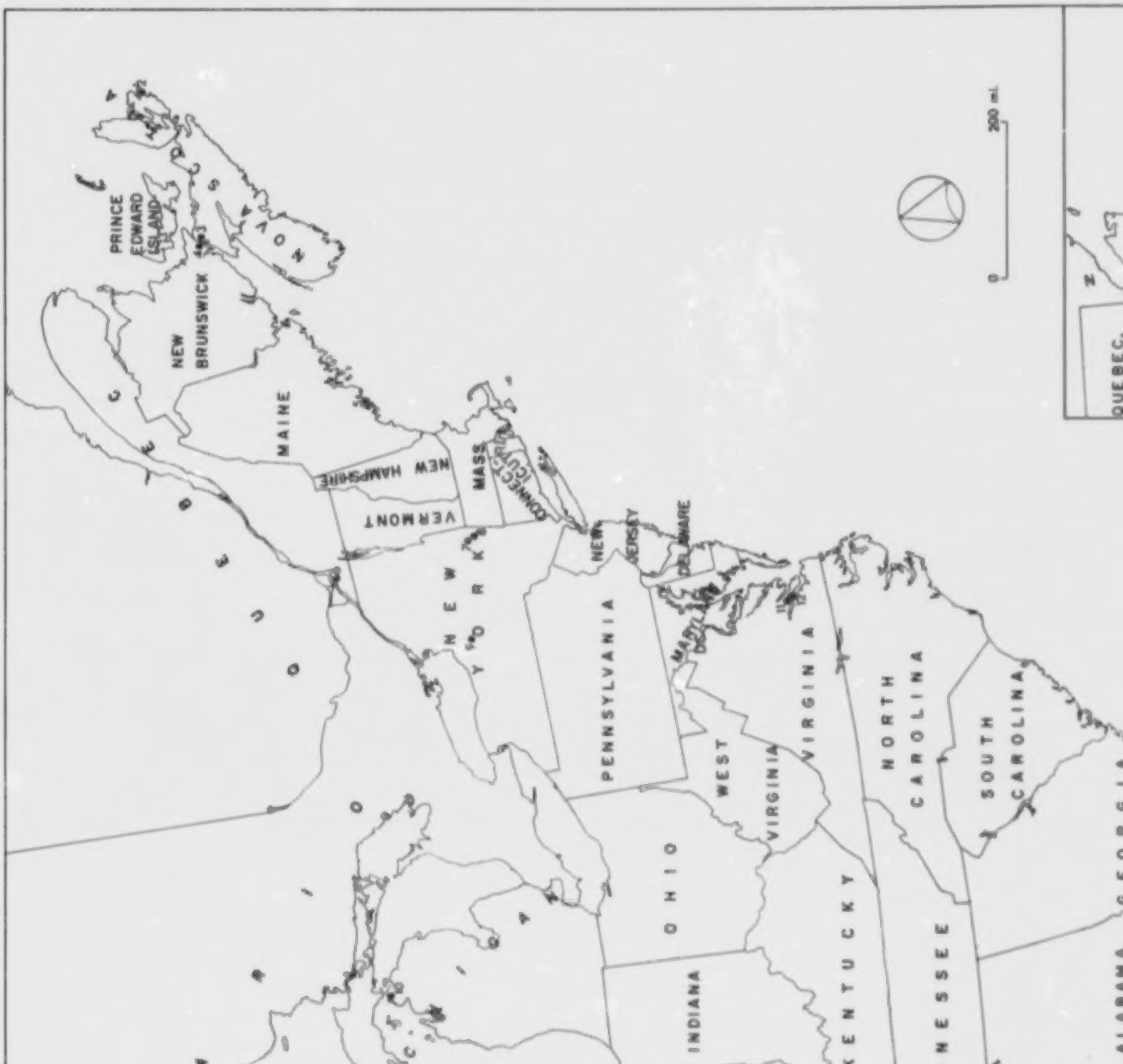
9) Pen site, nr Syracuse, New York state - Thomas Owen (I, II, or III);

10) Fort Michilimackinac, Michigan - George Ebbery;

11) Williamsburg, Virgania - Issac Evans, George Ebbery;

12) Jamestown, Virginia - Thomas Owen (I, II, or III);

13) Port Royal, Jamaica - James Abbot, William Taylor, John Hunt (I or II), Devereaux Jones (I or II), Charles Chick, Thomas Owen (I, II, or III) Isaac Evans, Henry Edwards, John Masey (I or II) Edward Reed, J. Jenkins, John Wilson, George Ebbery William Nicholas, -- Lewis, -- Edwards.


ONTARIO
QUEBEC
PRINCE EDWARD ISLAND
NOVA SCOTIA
NEW BRUNSWICK
MAINE
NEW HAMPSHIRE
VERMONT
MASS
CONNECTICUT
R.I.
NEW YORK
NEW JERSEY
DELAWARE
MARYLAND
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
0
200 mi.

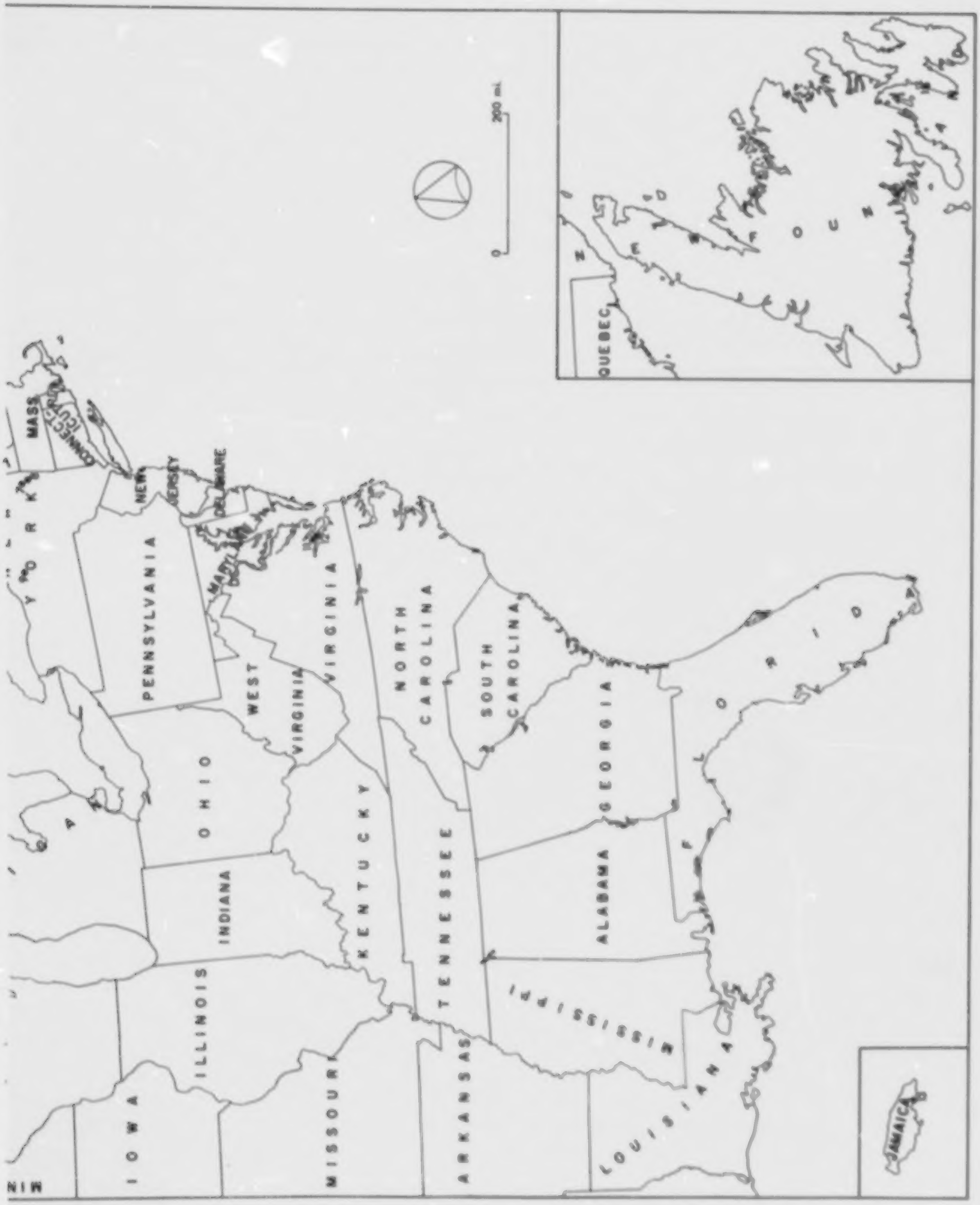
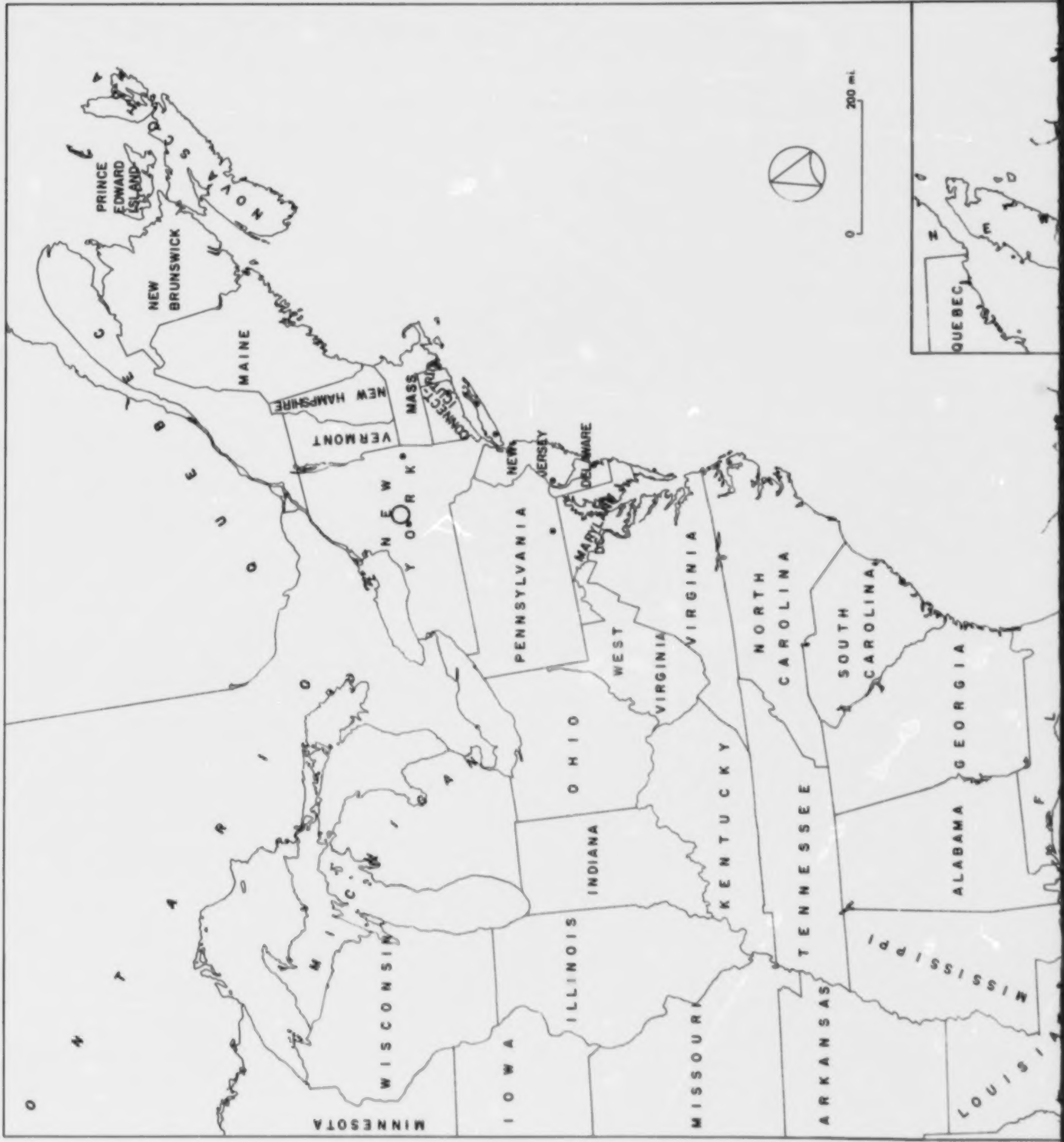

0
200 mi.
NEW YORK
MASS
CONNECTICUT
NEW JERSEY
DELAWARE
MARYLAND
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
OHIO
INDIANA
ILLINOIS
KENTUCKY
TENNESSEE
ALABAMA
MISSISSIPPI
LOUISIANA
ARKANSAS
MISSOURI
IOWA
QUEBEC
NEWFOUNDLAND
JAMAICA

FIG 164

Map of eastern North America showing distribution of C17 and C18 EB-marked pipes. The large open circle in central New York state represents the Onondaga, Oneida, and Mohawk Indians lands (for practical purposes roughly the Mohawk valley from Albany west and over to Syracuse) where such pipes have occured frequently on C17 Indian sites.


ONTARIO
QUEBEC
PRINCE EDWARD ISLAND
NEW BRUNSWICK
NOVA SCOTIA
MAINE
NEW HAMPSHIRE
VERMONT
MASS
CONNECTICUT
R.I.
NEW YORK
NEW JERSEY
DELAWARE
MARYLAND
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
LOUISIA
F L
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
0
200 mi
QUEBEC
N E W D

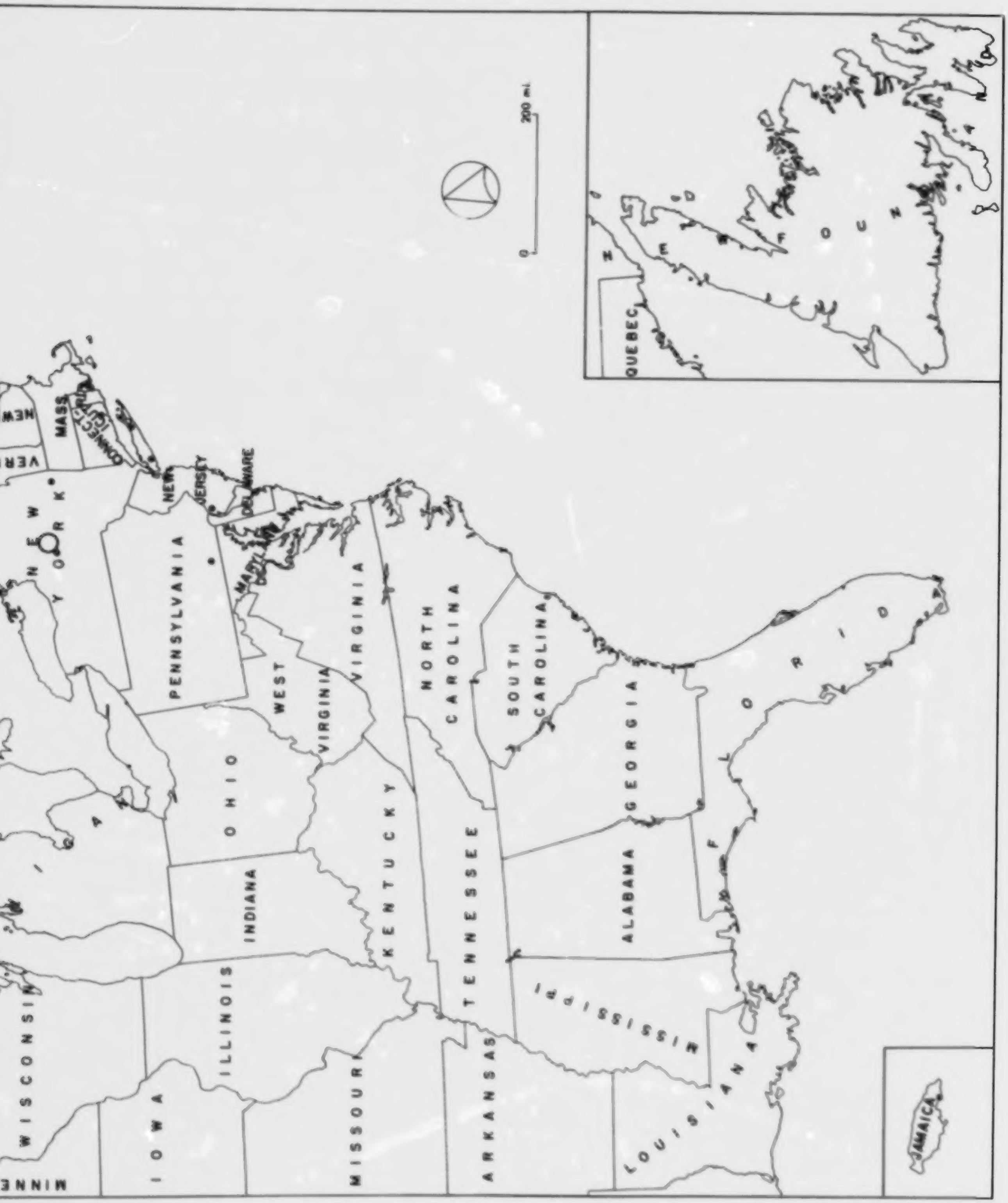
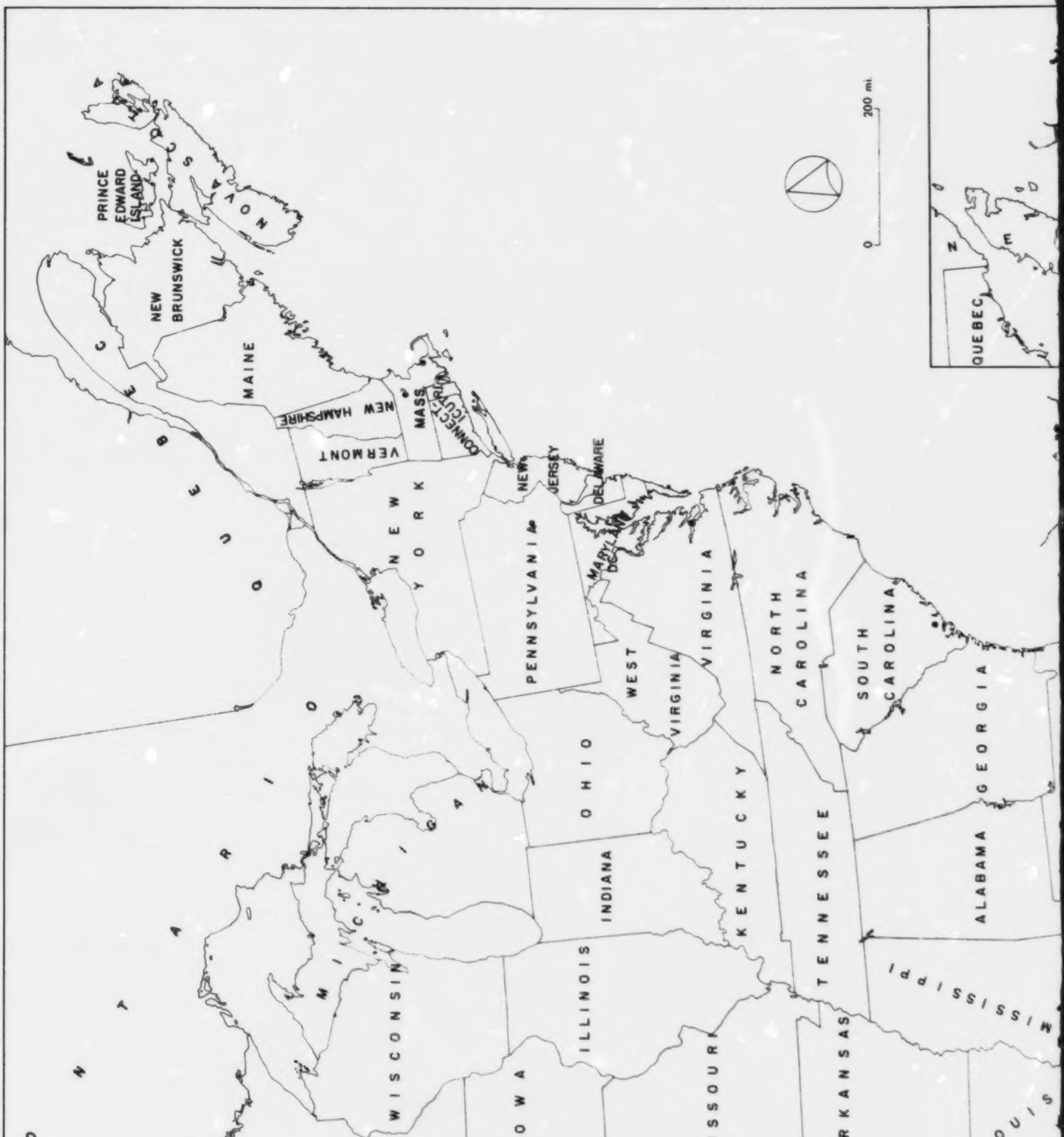

0
200 mi.
QUEBEC
N
E
W
F
O
U
N
D
NEW YORK
VER
NEW
MASS
CONNECTICUT
NEW
JERSEY
DELAWARE
MARYLAND
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
OHIO
INDIANA
KENTUCKY
TENNESSEE
ALABAMA
MISSISSIPPI
ILLINOIS
MISSOURI
ARKANSAS
LOUISIANA
IOWA
WISCONSIN
MINNE
JAMAICA

FIG 165

Map of eastern North America showing distribution of ER-marked pipes.


QUEBEC
ONTARIO
PRINCE EDWARD ISLAND
NOVA SCOTIA
NEW BRUNSWICK
MAINE
NEW HAMPSHIRE
VERMONT
MASS
CONNECTICUT
R.I.
NEW YORK
NEW JERSEY
DELAWARE
PENNSYLVANIA
MARYLAND
D.C.
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
LOUIS
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
0
200 mi.
QUEBEC

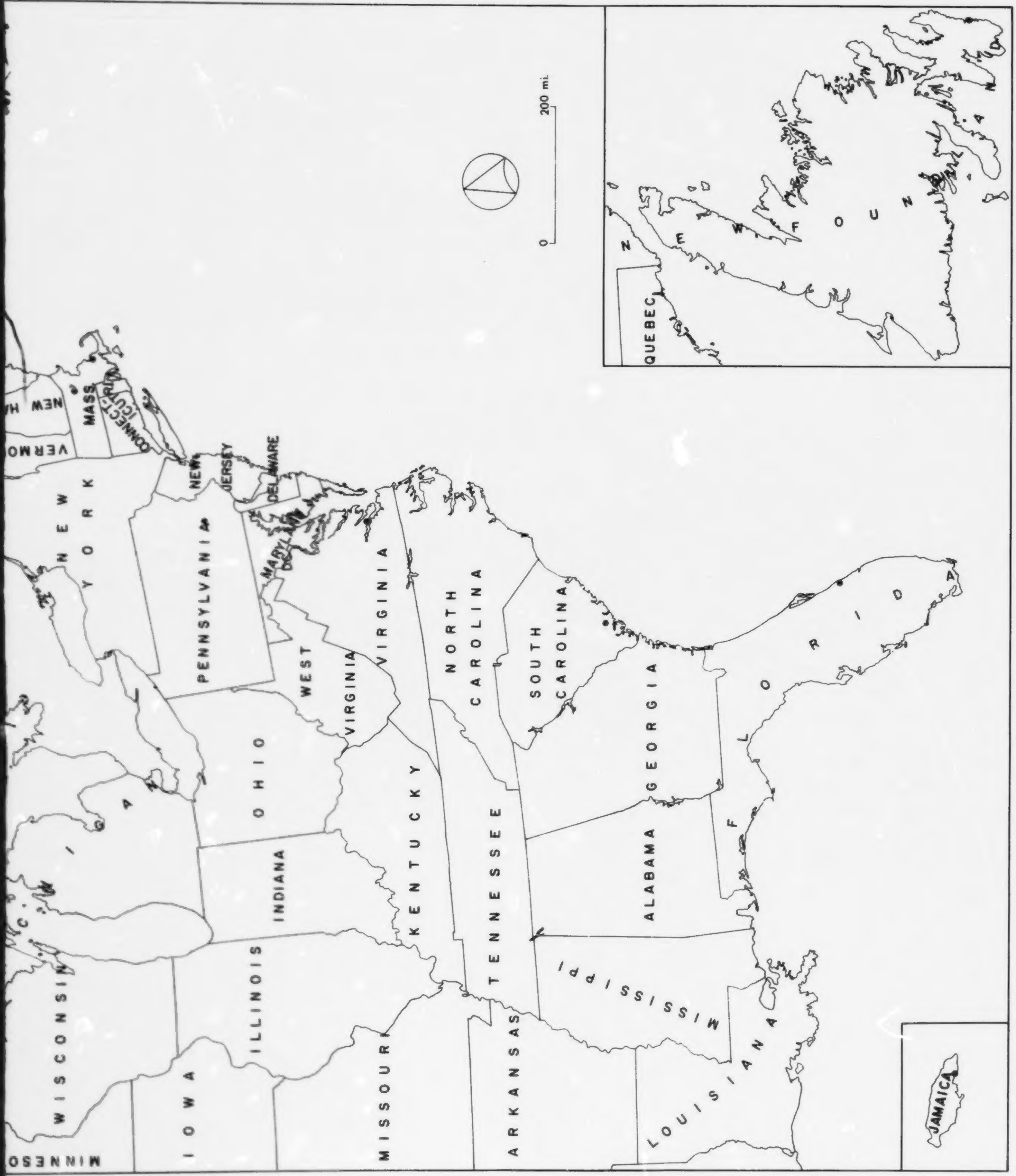
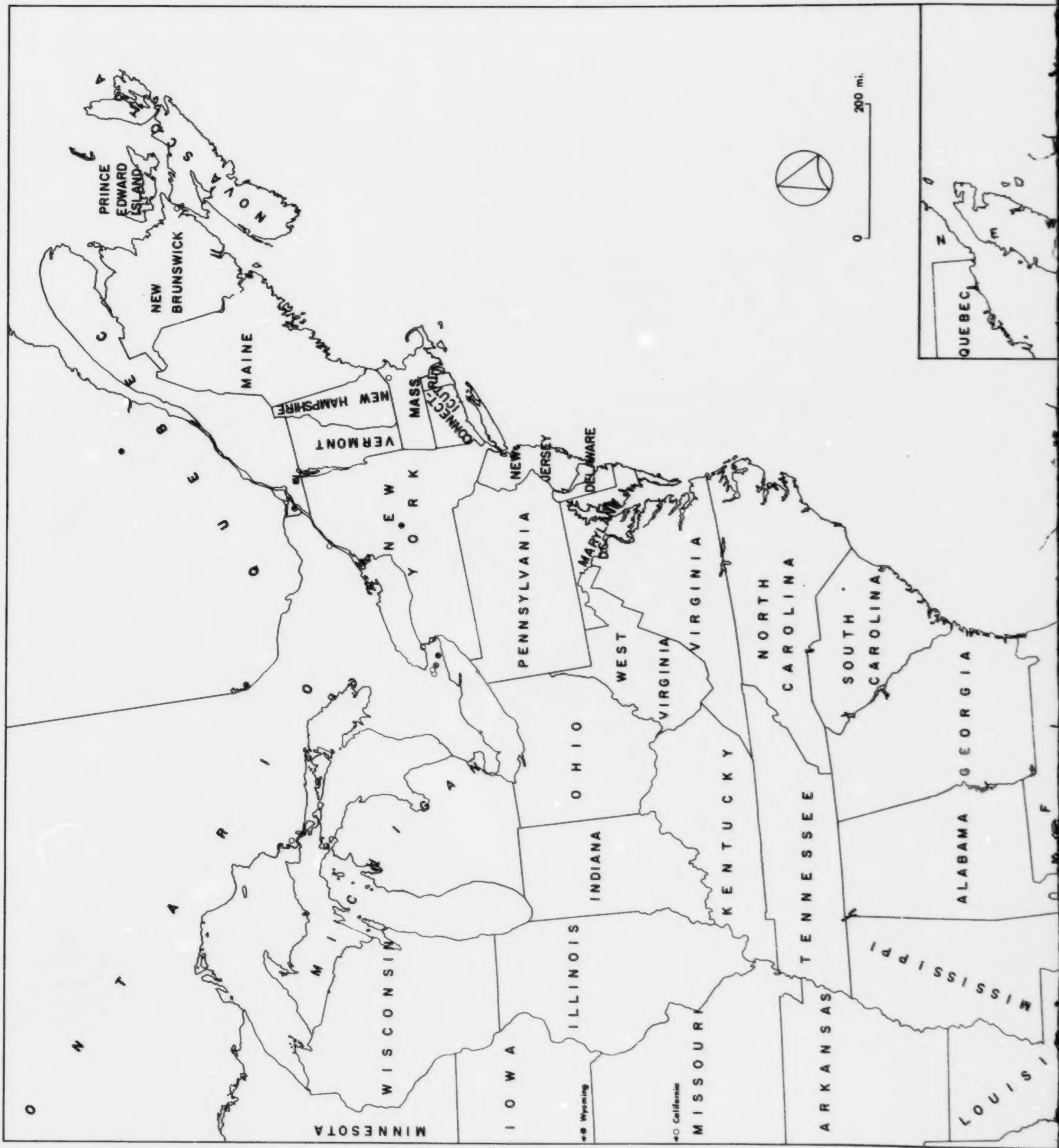

NEW YORK
VERMO
NEW HA
MASS.
CONNECTICUT
R.I.
NEW JERSEY
DELAWARE
MARYLAND
DEL.
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
ALABAMA
MISSISSIPPI
LOUISIANA
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESO
IOWA
MISSOURI
ARKANSAS
NEWFOUNDLAN
QUEBEC
JAMAICA
0
200 mi.

FIG 166

Map of eastern North America showing distribution of pipes attributable to the Ring firm (solid circles), to Anna Viner (solid squares), and possibly attributable to the Ring firm (open circles).


QUEBEC
ONTARIO
PRINCE EDWARD ISLAND
NOVA SCOTIA
NEW BRUNSWICK
MAINE
NEW HAMPSHIRE
VERMONT
MASS
CONNECTICUT
R.I.
NEW YORK
NEW JERSEY
DELAWARE
MARYLAND
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
LOUISI
TENNESSEE
KENTUCKY
OHIO
INDIANA
ILLINOIS
MICHIGAN
WISCONSIN
MINNESOTA
IOWA
MISSOURI
ARKANSAS
Wyoming
California
0
200 mi.
QUEBEC
N
E
F

1763

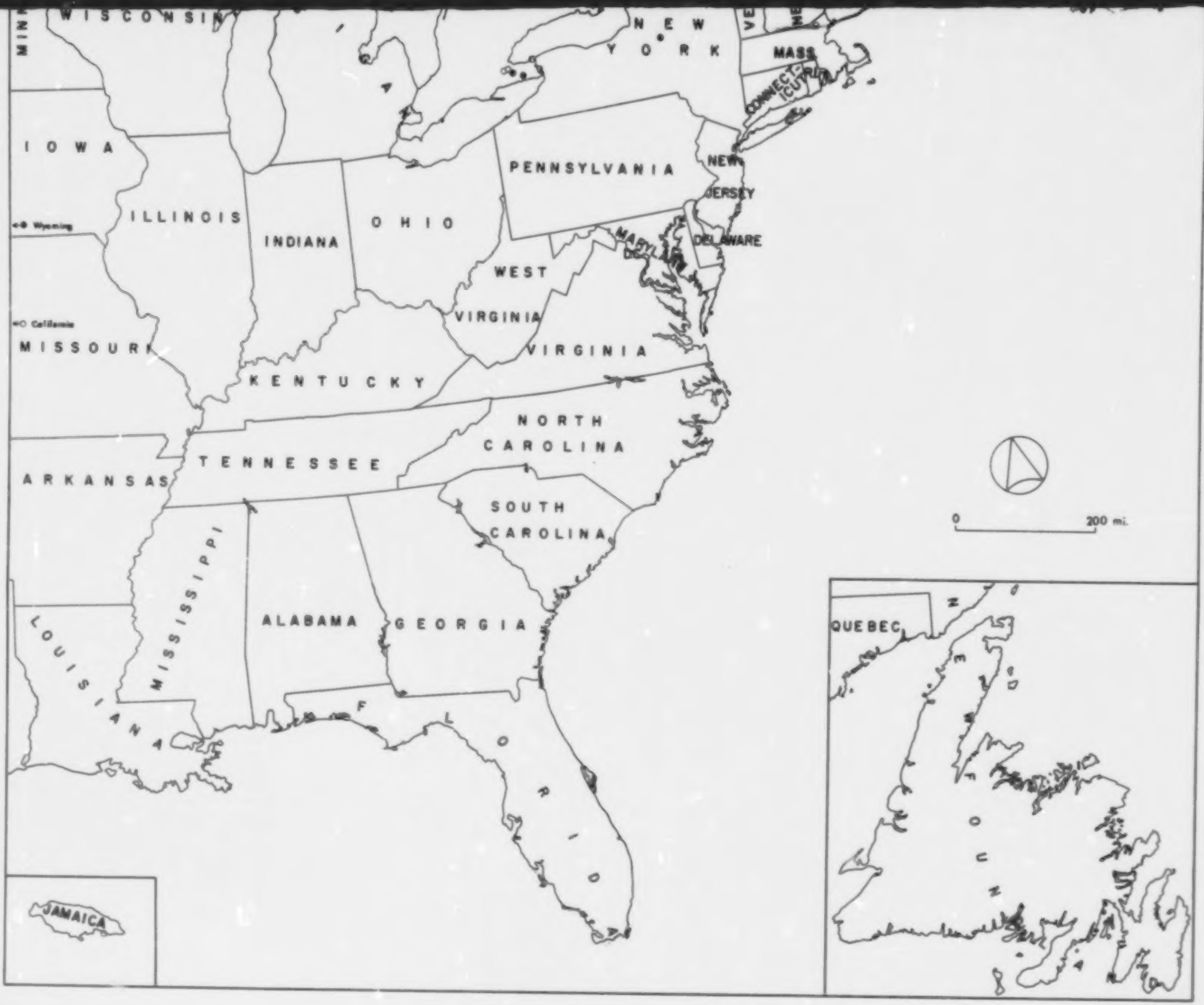

WISCONSIN
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
MASS
CONNECTICUT
RI
NEW JERSEY
DELAWARE
MARYLAND
WEST VIRGINIA
VIRGINIA
KENTUCKY
MISSOURI
Wyoming
California
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
ARKANSAS
MISSISSIPPI
ALABAMA
GEORGIA
LOUISIANA
FLORIDA
JAMAICA
QUEBEC
NEWFOUNDLAND
0
200 mi.

FIG 167

Plan of part of Bristol. The St. Jude's area is outlined (Geographia Plan of Bristol, 4½ ins to 1 mile).

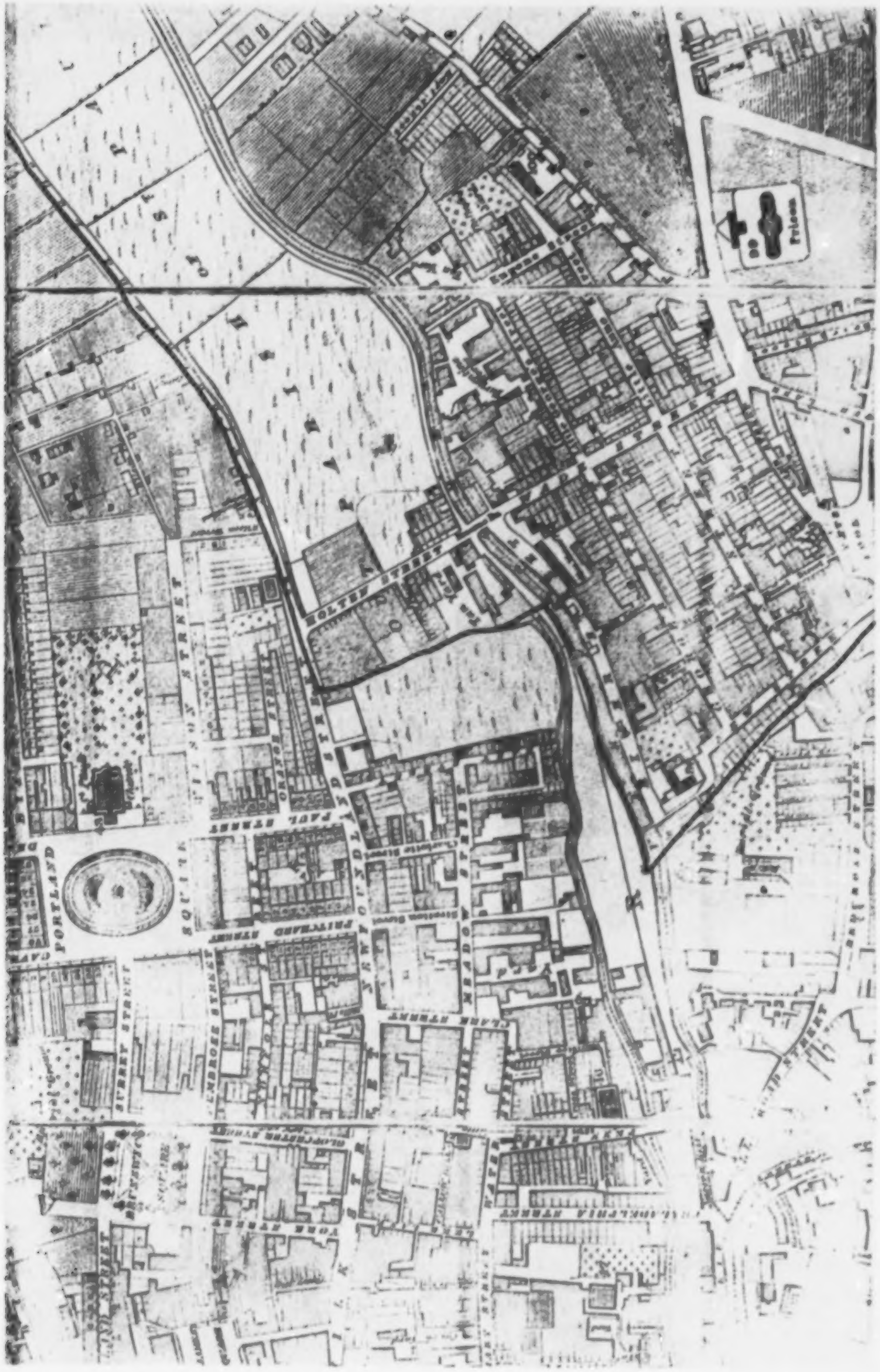
(c) Geographia Limited, Crown Copyright Reserved

COTHAM
St. Pauls
CLARENCE RD.
WEST ST.
OLD MARKET ST.
CASTLE ST.
A420
St. Philips
A4
A38
REDCLIFF
TEMPLE MEADS
St. Phil
TOTTERDOWN
WINDMILL
HILL
Victoria
PARK
BEDMINSTER

FIG 168

The St Jude's area 1828, from Ashmead's *Plan of the city of Bristol and its suburbs* of that year; original scale 26 ins to 1 mile, reduced here to 15½ ins to 1 mile. The pre-1835 city boundary is marked by the heavy dark line; notice how the St Jude's area immediately abuts it, with New St running parallel to the boundary and so close that the latter actually cuts through the back-gardens of the properties on the SW side of the street.

1767



PORTLAND
PAUL STREET
ORANGE STREET
PRITCHARD STREET
NEWFOUNDLAND STREET
MEADOW STREET
CLARK STREET
SURREY STREET
YORK STREET
PHILADELPHIA STREET
Prison

FIG 169

The St Jude's area 1742, from Rocque's Plan of the city of Bristol of that year; original scale 26 ins to 1 mile, reduced here to 15½ ins to 1 mile (City Museum, Bristol).

1769

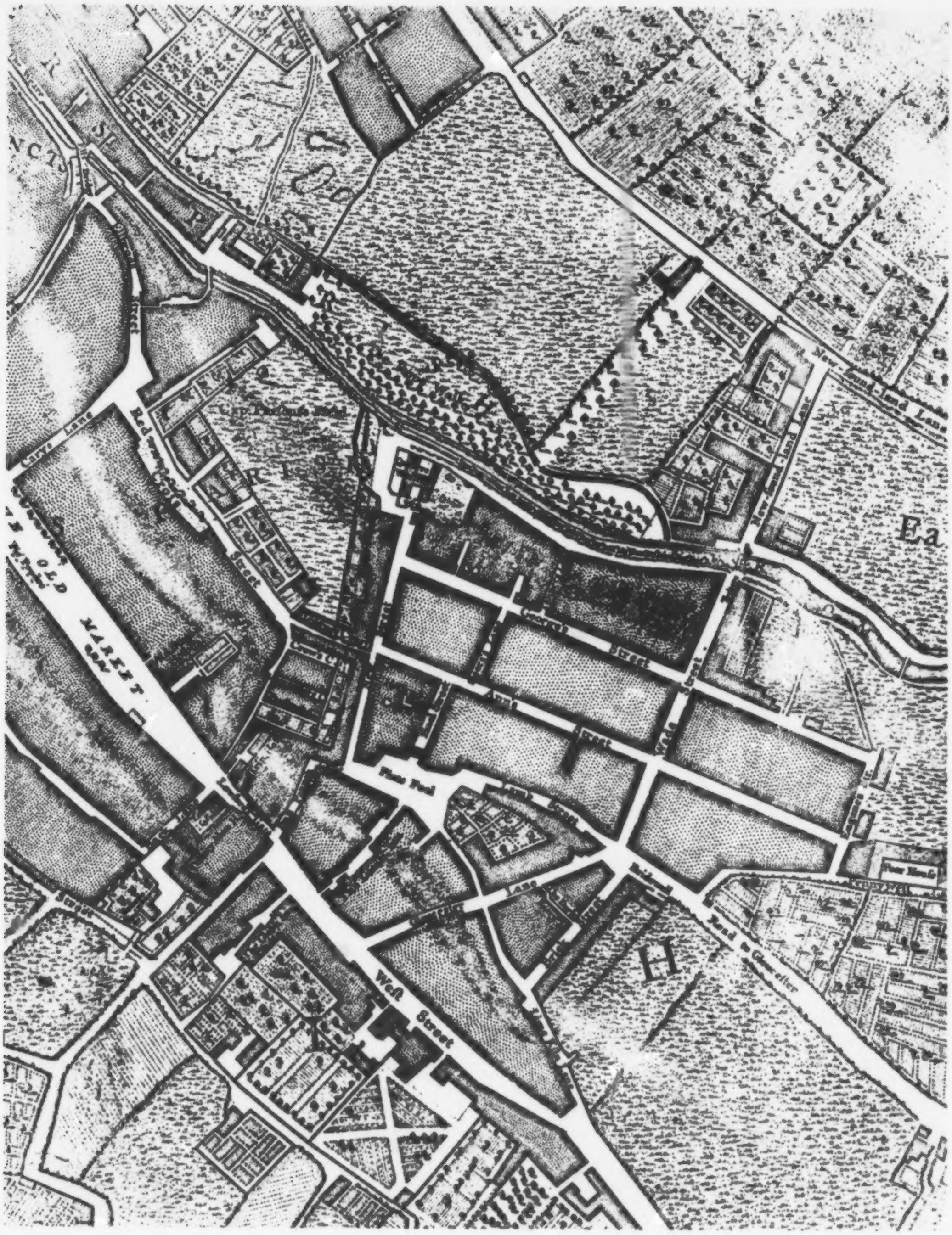

Carys Lane
Red Street
OLD
MARKET
George Street
Anne Street
Street
New Sound-land Lane
New Land Lane
Ea
Wade Street
Road to Gloucester
H
West Street

FIG 170

Part of Donne's Plan of the city of Bristol delineated from actual survey, 1st ed 1773; original scale 8 ins to 1 mile, reduced here to 5-5/8 ins to 1 mile. The St Jude's area lies right centre (City Museum, Bristol).

1771

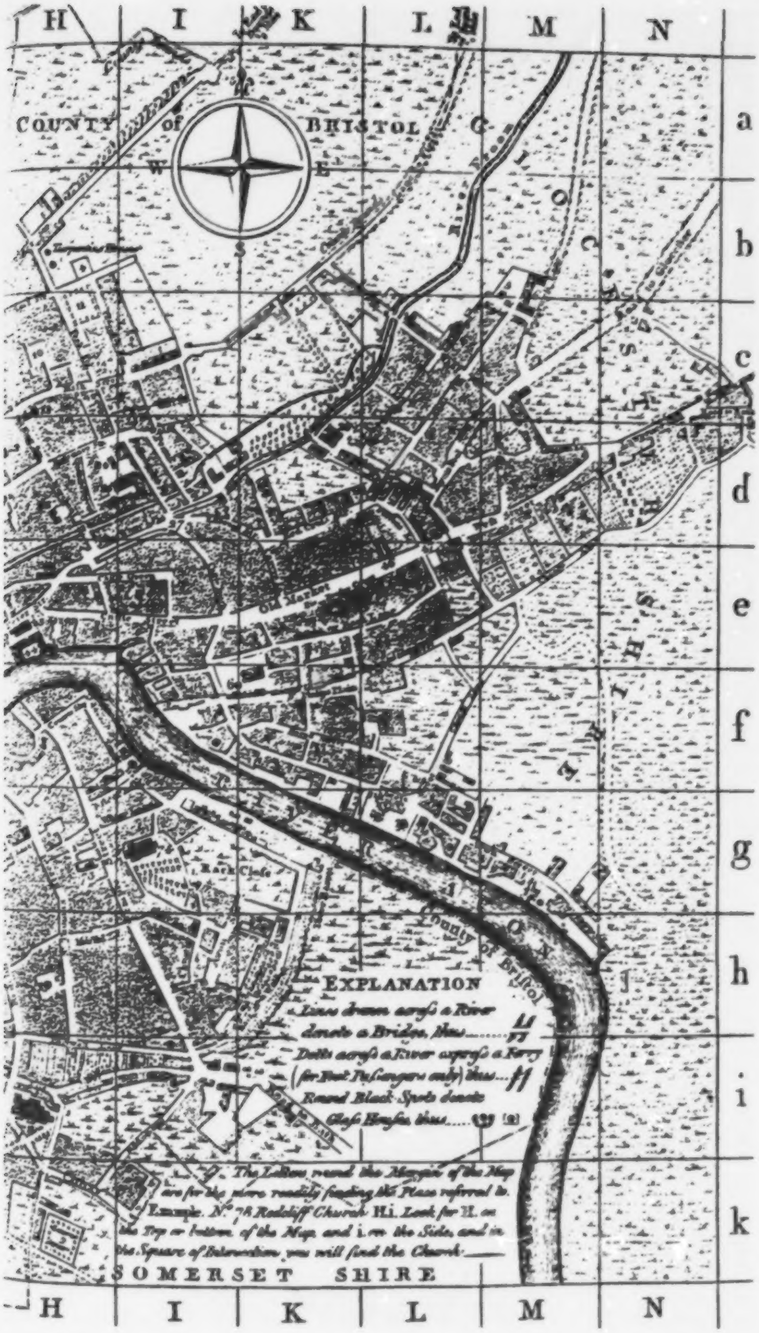

H
I
K
L
M
N
a
b
c
d
e
f
g
h
i
k
COUNTY of BRISTOL
GLOCESTERSHIRE
W
E
S
Back Close
County of Bristol
EXPLANATION
Lines drawn acroſs a River denote a Bridge, thus
Dotts acroſs a River expreſs a Ferry (for Foot Paſsengers only) thus
Round Black Spots denote Glaſs Houſes, thus
The Letters round the Margin of the Map are for the more readily finding the Place referred to. Example. N.o 78 Radcliff Church Hi. Look for H. on the Top or bottom of the Map, and i. on the Side, and in the Square of Intersection you will find the Church
SOMERSET SHIRE

FIG 171

Millerd's An exact delineation of the famous cittie of Bristoll; original scale 7 ins to 1 mile, reduced here to 2-1/8 ins to 1 mile. The future St Jude's area, entirely undeveloped save for a row of four houses on the NW side of Gloucester Rd (number 22 on the plan) in the Pointz Pool area, lies approximately two-thirds of the way up the rt-hand edge, where the wording "Froome River" is (City Museum, Bristol).

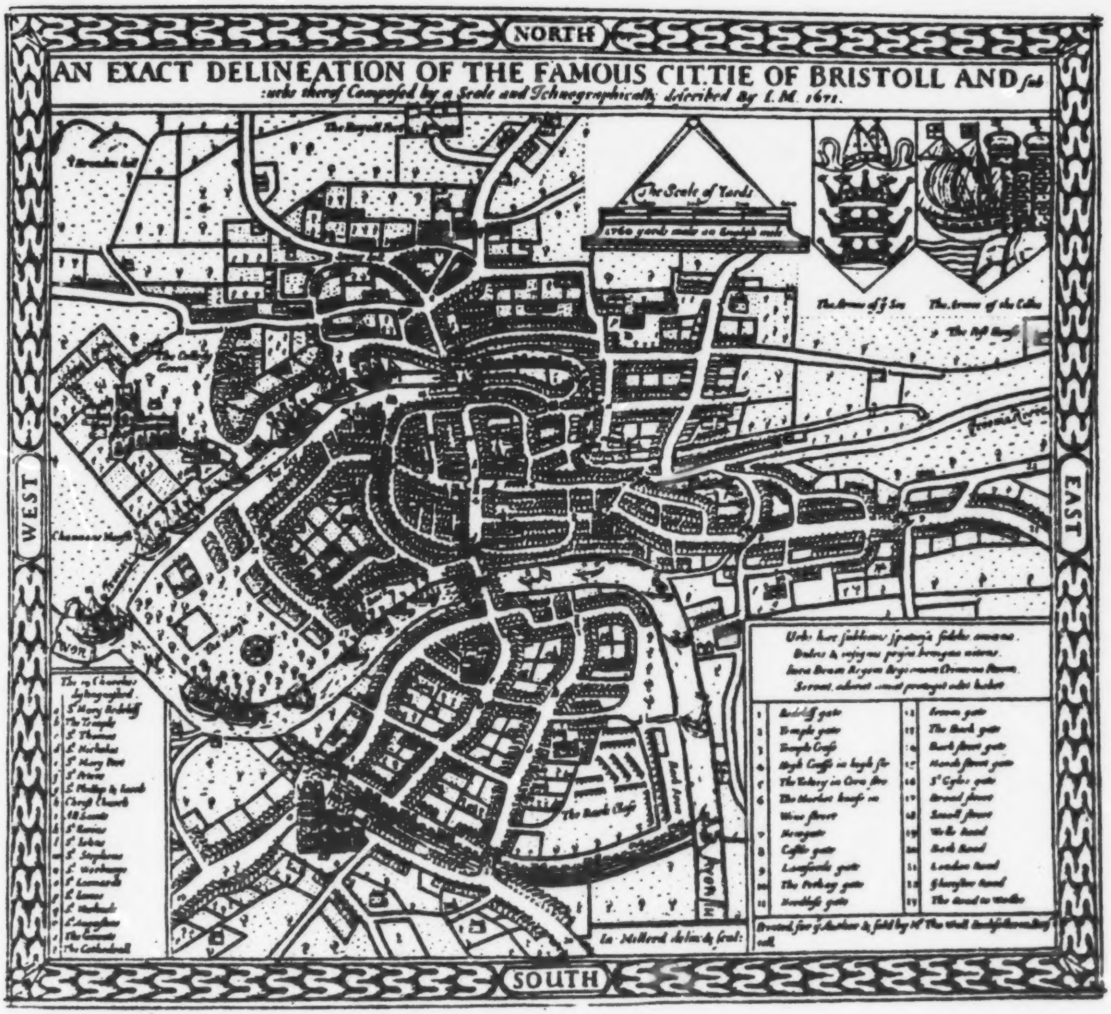

NORTH
AN EXACT DELINEATION OF THE FAMOUS CITTIE OF BRISTOLL AND sub
:urbs thereof Composed by a Scale and Ichnographically described By I. M. 1671.
The Scale of Yards
The Armes of ye Sea
The Armes of the Cittie
WEST
EAST
Avon
Io: Millerd delin: & sculp:
Redcliff gate
Temple gate
Temple Crosse
High Crosse in high str
The Tolsey in Corn str
The Market house in
Wine street
Newgate
Castle gate
Lawfords gate
The Pithay gate
Needless gate
Frome gate
The Back gate
Marsh street gate
St Gyles gate
Broad street
Small street
Wells Road
Bath Road
London Road
Gloucester Road
The Road to Wales
The Temple
St Thomas
St Nicholas
St Mary Port
St Peter
St Philip & Jacob
Christ Church
All Saints
St Ewins
St Johns
St Stephens
St Werburgh
St Leonards
St James
St Michaels
St Augustine
The Gaunts
The Cathedrall
SOUTH

FIG 172

Part of Millerd's *An exact delineation of the famous citty of Bristoll and suburbs*, 1st ed 1673; original scale 24½ ins to 1 mile, reduced here to 18¼ ins to 1 mile. The future St Jude's area lies approximately half-way up the rt-hand edge, between Gloucester Rd (modern Lawford's Gate and Stapleton Rd) and the Frome, the open expanse on which are written the Latin dactylic hexameters ironically praising the pastoral charms of the area (City Museum, Bristol).

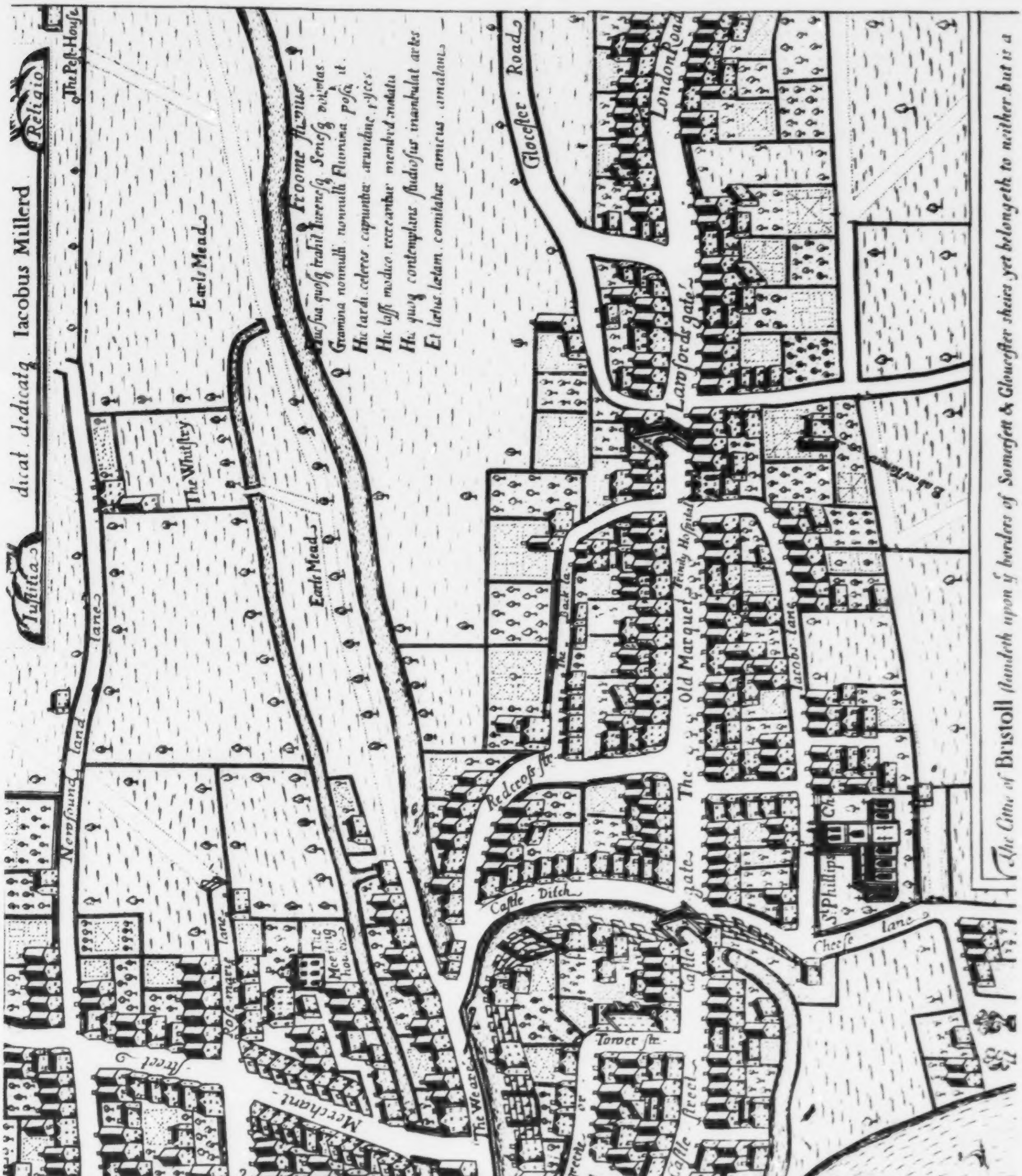
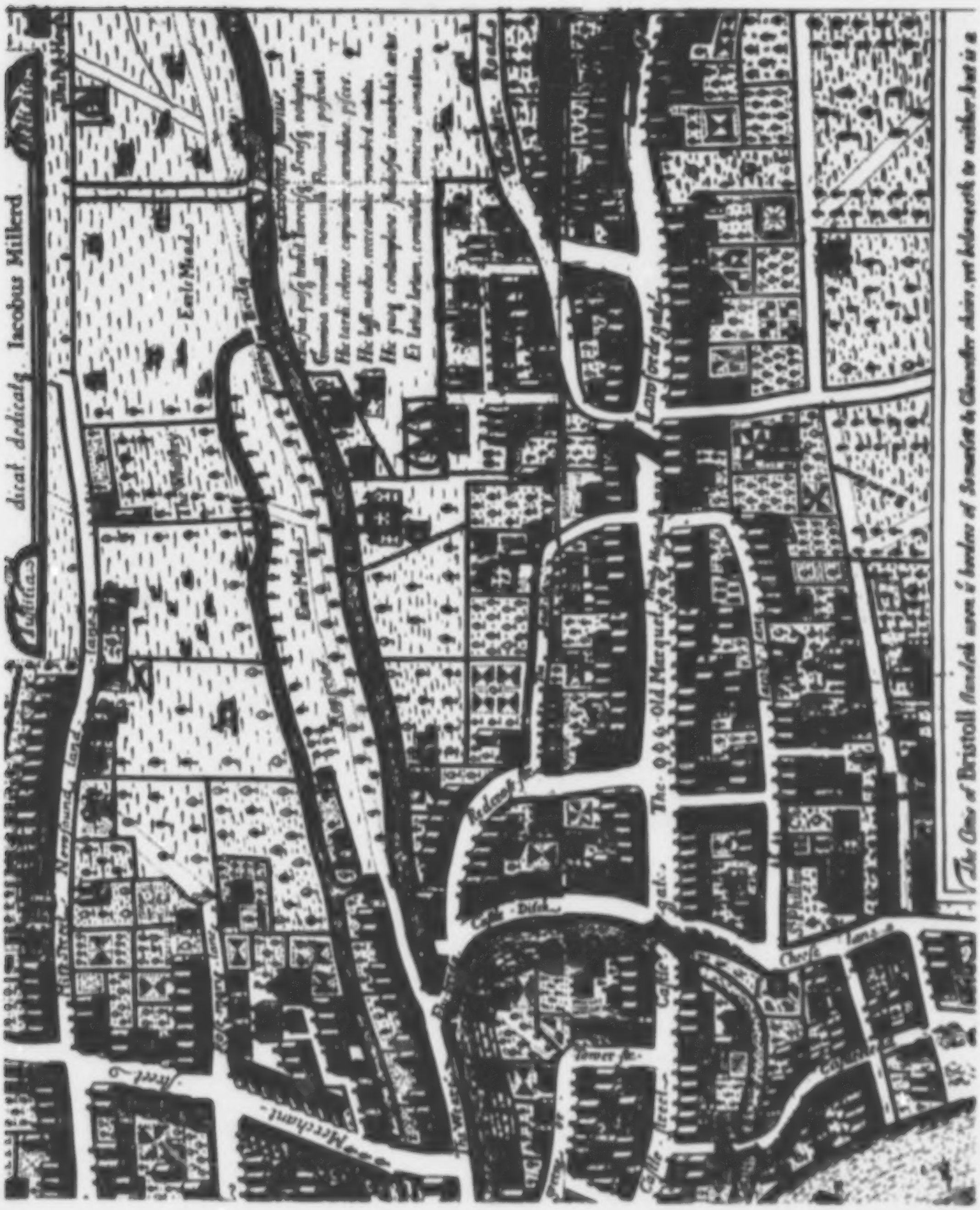

Iustitia dicat dedicatq. Iacobus Millerd Religio
The Post-House
Newfound land lane
Earls Mead
The Whitsltry
Earls Mead
Froome fluvius
Glocester Road
London Road
Lawfords gate
Trinity Hospital
The Old Marquet
The back la.
Jacobs lane
Redcross str.
Castle Ditch
St. Phillips Ch.
Cheese lane
Castle gate
Tower str.
Castle street
Castle greene
The Weare
The Meeting house
Rosemary lane
Merchant street
The City of Bristoll standeth upon ye borders of Somersett & Gloucester sheirs yet belongeth to neither but is a

FIG 173

Part of Millerd's *An exact delineation of famous citty of Bristoll and suburbs*, 4th ed; original scale 24½ ins to 1 mile, reduced here to approximately 20¾ ins to 1 mile. The future St Jude's area now shows definite signs of development, with houses along Lamb St, New St, Pinnel St, and part of Gt Ann St. Wade's (or Traitor's) Bridge across the Frome is shown (directly above the title "Froome fluvius") and Wade St is depicted by dotted lines across the Latin verse; Bristol City Museum in their *Information Sheet* on Bristol maps dates this edition of Millerd to "ca.1710" but as Wade's Bridge was not built until 1711 the plan must date at least that late (City Museum, Bristol).

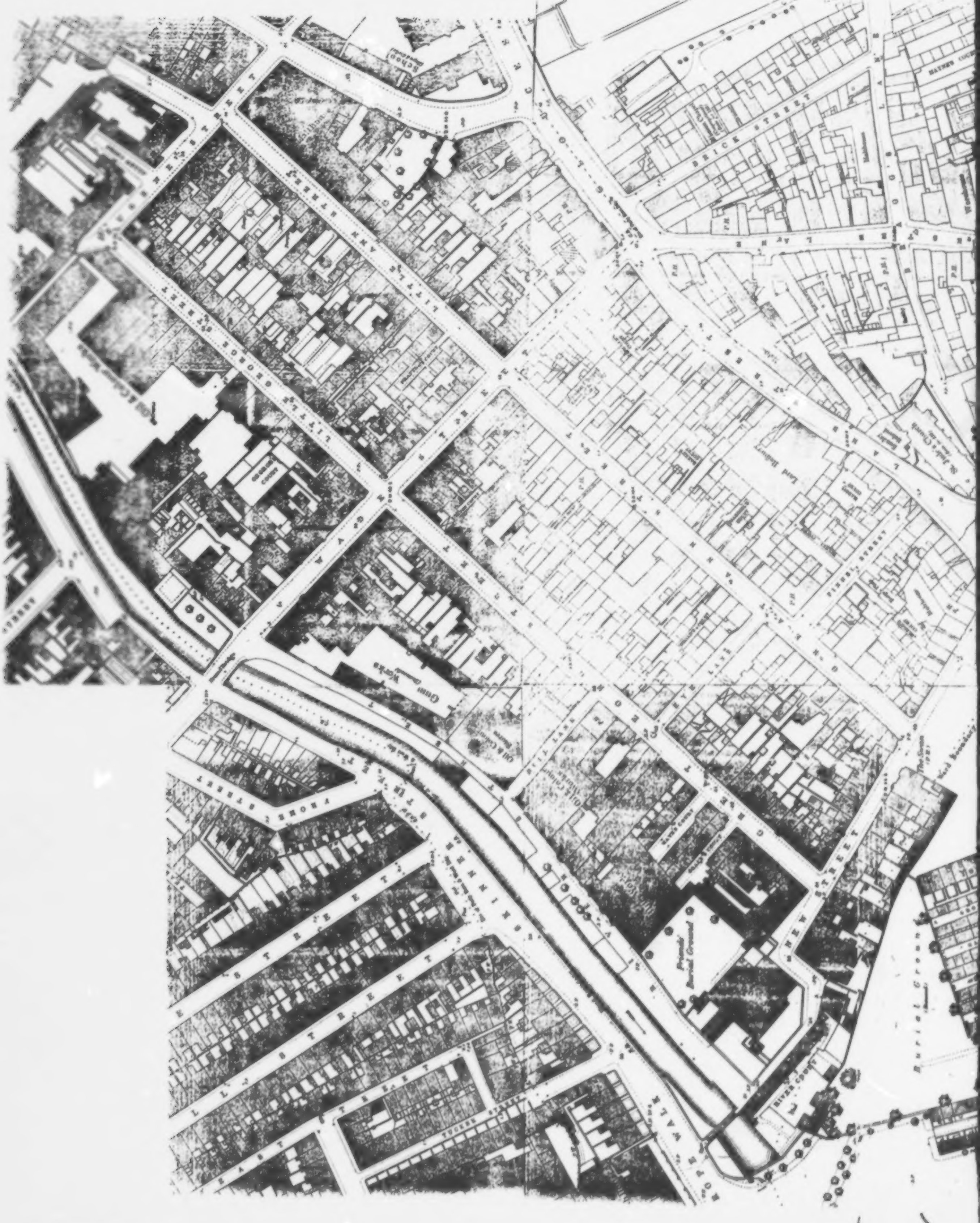
1777



Iacobus Millerd
dicat dedicatq
Earl Mead
The Old Marquet
Lawfordes gate
Redcliff
Newfound land lane
Castle Ditch
Castle street
Tower st.
Christ lane
Merchant street
The Citie of Bristoll standeth neere ÿ borders of Somersett & Glocester shires, yet belongeth to neither but is a

FIG 174

St Jude's from the OS 10.56 ft to 1 mile plan surveyed 1882-83 and published 1885 (reduced here to 3.17 ft to 1 mile).


School
LITTLE ANN STREET
LITTLE GEORGE STREET
BRICK STREET
HAYNES COURT
Works
BULL LANE
NEW STREET
Proposed Burial Ground
Burial Ground
RIVER COURT
HOPE WALK
TUCKER STREET
EAST STREET
Ward Boundary

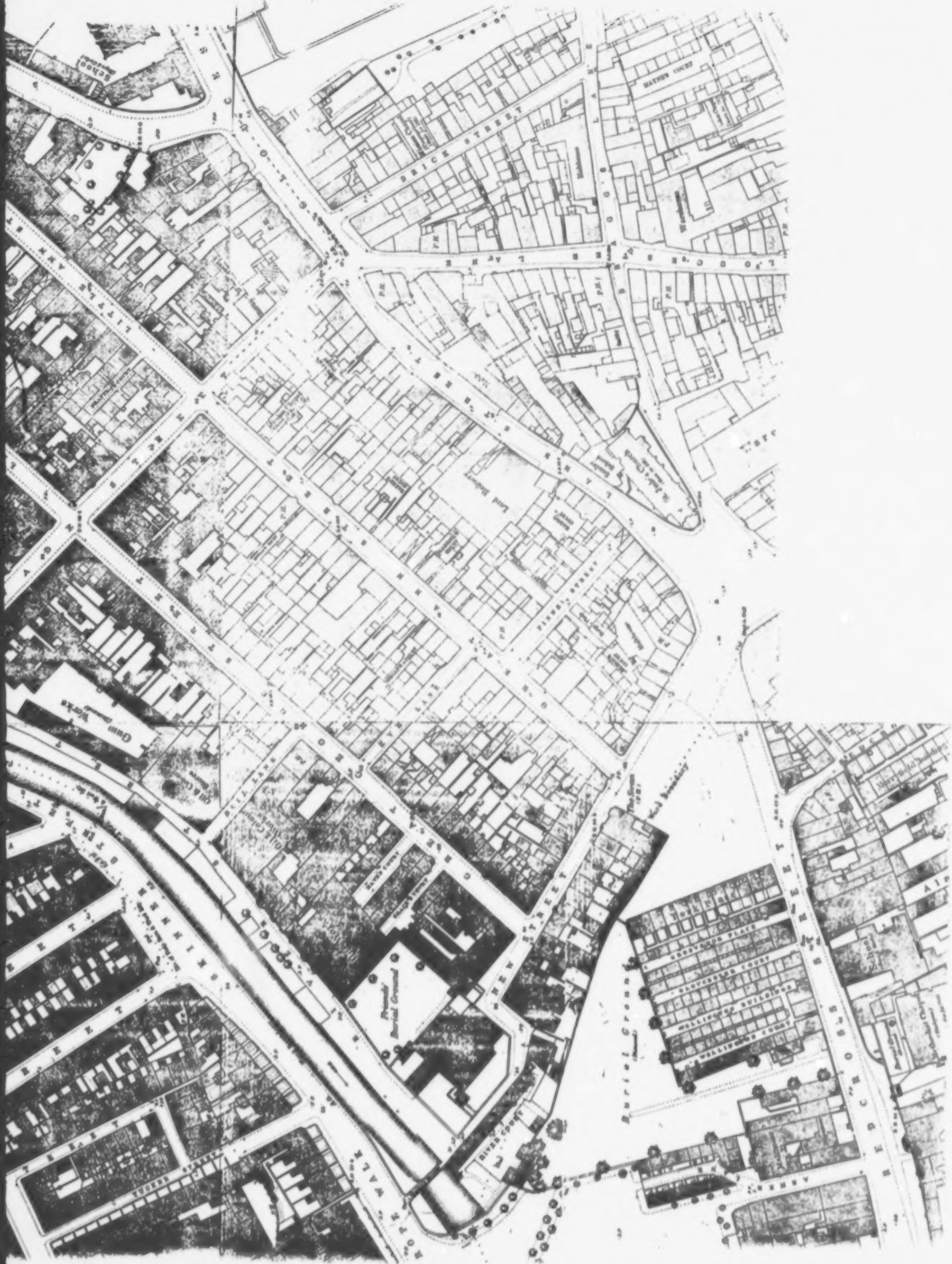

School
BRICK STREET
LITTLE
STREET
P.H.
Gas Works
Friends' Burial Ground
NEW STREET
Burial Ground
YORK PLACE
GROSVENOR PLACE
GLOUCESTER COURT
WELLINGTON BUILDINGS
WELLINGTON COURT
RIVER COURT
Ward Boundary
REDCROSS STREET
School

FIG 175

OS 25 ins to 1 mile plan of 1903, reduced here to 16-1/8 ins to 1 mile, showing St Jude's area centre right.

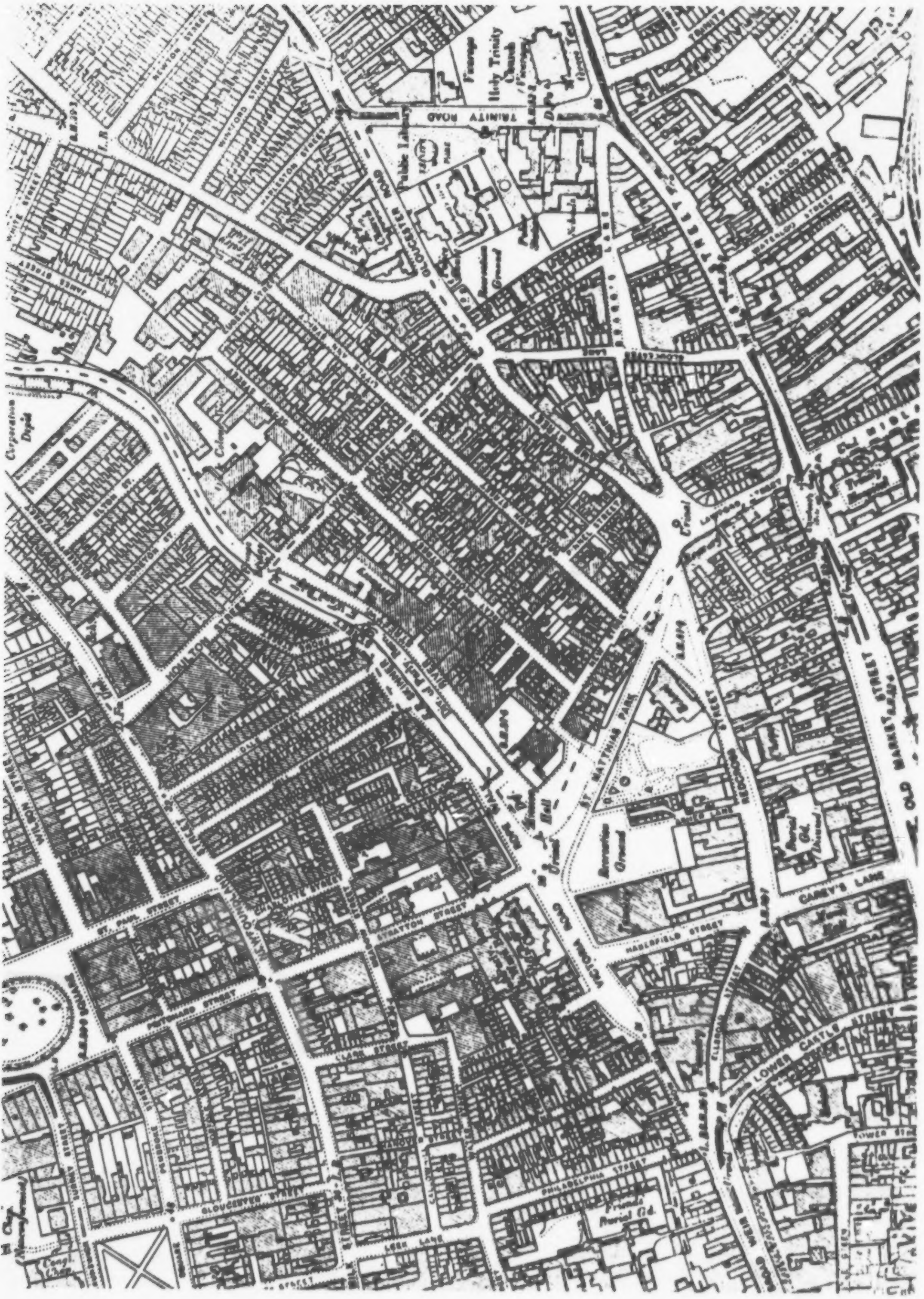

TRINITY ROAD
Holy Trinity Church
Parsonage
Corporation Depot
ST. MATTHIAS PARK
Burial Ground
OLD MARKET STREET
CAREY'S LANE
LOWER CASTLE STREET
STRATTON STREET
ST. PAUL STREET
GLOUCESTER STREET
PHILADELPHIA STREET
Friends Burial Gd.
LEEK LANE
Cong. Chap.

FIG 176

The St Jude's area 1952, from OS 25 ins to 1 mile plan of that year (reduced here to 16-1/8 ins to 1 mile).

Reproduced from the Ordnance Survey Map with the Sanction of the Controller of Her Majesty's Stationery Office,
Crown copyright reserved

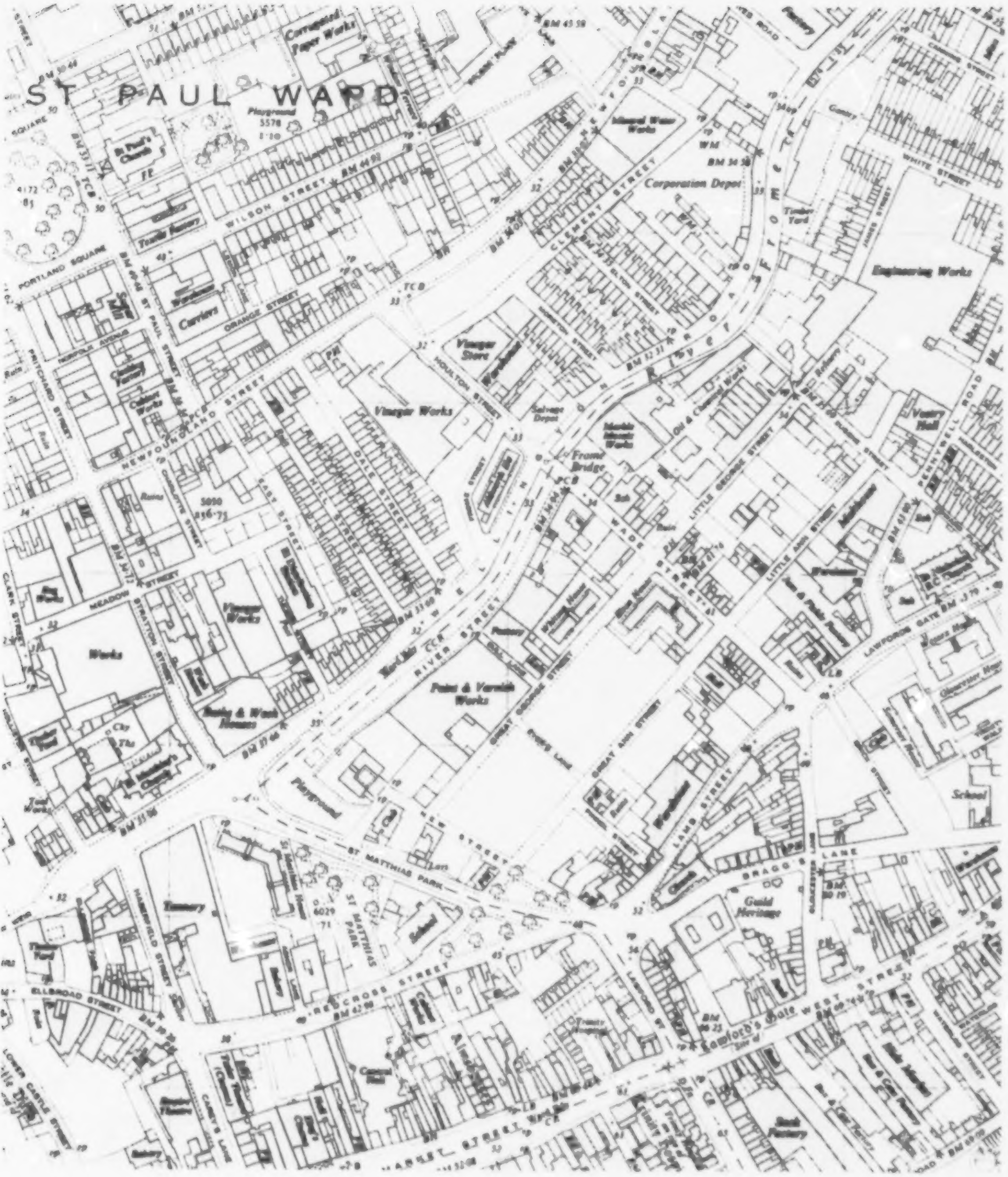

ST PAUL WARD
PORTLAND SQUARE
St Paul's Church
Playground
Corrugated Paper Works
WILSON STREET
ORANGE STREET
Carriers
Textile Factory
ST PAUL STREET
NORFOLK AVENUE
PRITCHARD STREET
NEWFOUNDLAND STREET
CHARLOTTE STREET
MEADOW STREET
STRATTON STREET
CLARK STREET
Works
Vinegar Works
Vinegar Store
Vinegar Works
HOULTON STREET
EAST STREET
MILL STREET
DALE STREET
Baths & Wash Houses
Salvage Depot
Frome Bridge
RIVER STREET
Mineral Water Works
CLEMENT STREET
Corporation Depot
River Frome
Timber Yard
WHITE STREET
Engineering Works
Oil & Chemical Works
LITTLE GEORGE STREET
WADE STREET
LITTLE ANN STREET
GREAT ANN STREET
GREAT GEORGE STREET
Paint & Varnish Works
Vestry Hall
PENNYWELL ROAD
LAWFORDS GATE
School
Playground
NEW STREET
ST MATTHIAS PARK
ST MATTHIAS PARK
School
Tannery
ELLBROAD STREET
REDCROSS STREET
LAMB STREET
BRAGG'S LANE
Guild Heritage
Lawford's Gate
WEST STREET
Boot Factory
MARKET STREET
LOWER CASTLE STREET
CAREY'S LANE
Central Hall

FIG 177

Sketch of Pinnel St in 1907 from Pointz Pool, with Gt Ann St in the background (Stone 1909: 259 lower illus.).

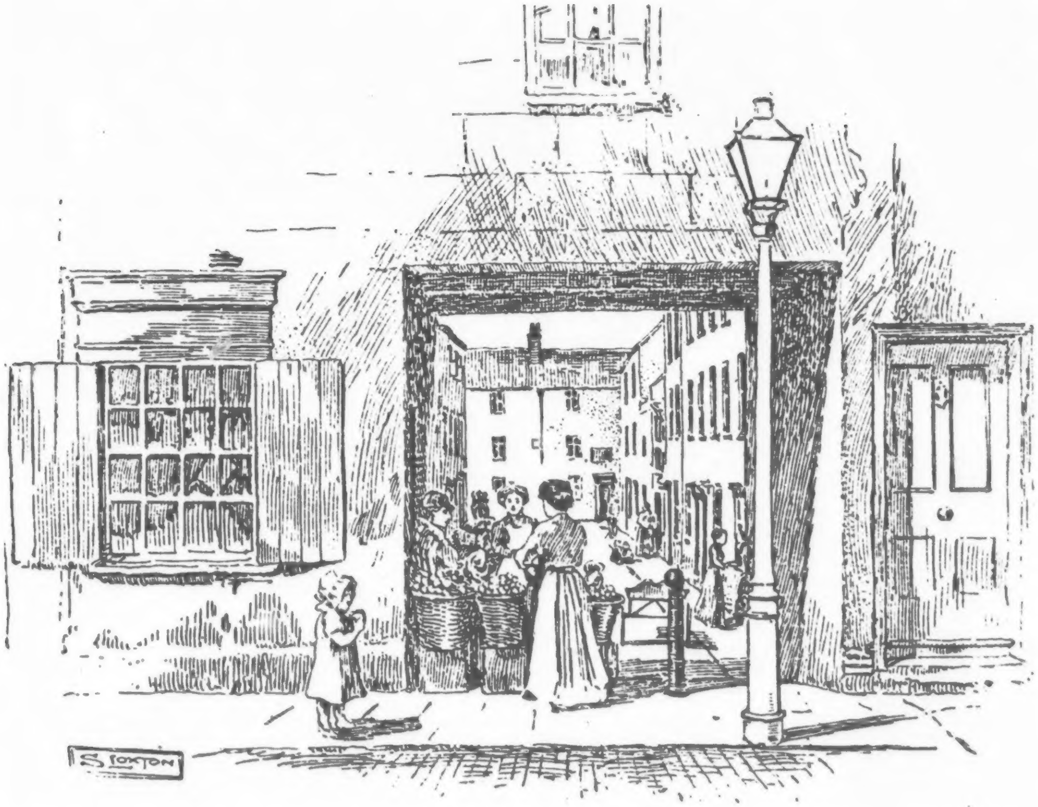

S LOXTON

FIG 178

The St Jude's area 1963, from OS 50 ins to 1 mile plan of that year (reduced here to 27¼ ins to 1 mile).

Reproduced from the Ordnance Survey Map with the sanction of the Controller of Her Majesty's Stationery Office,
Crown copyright reserved

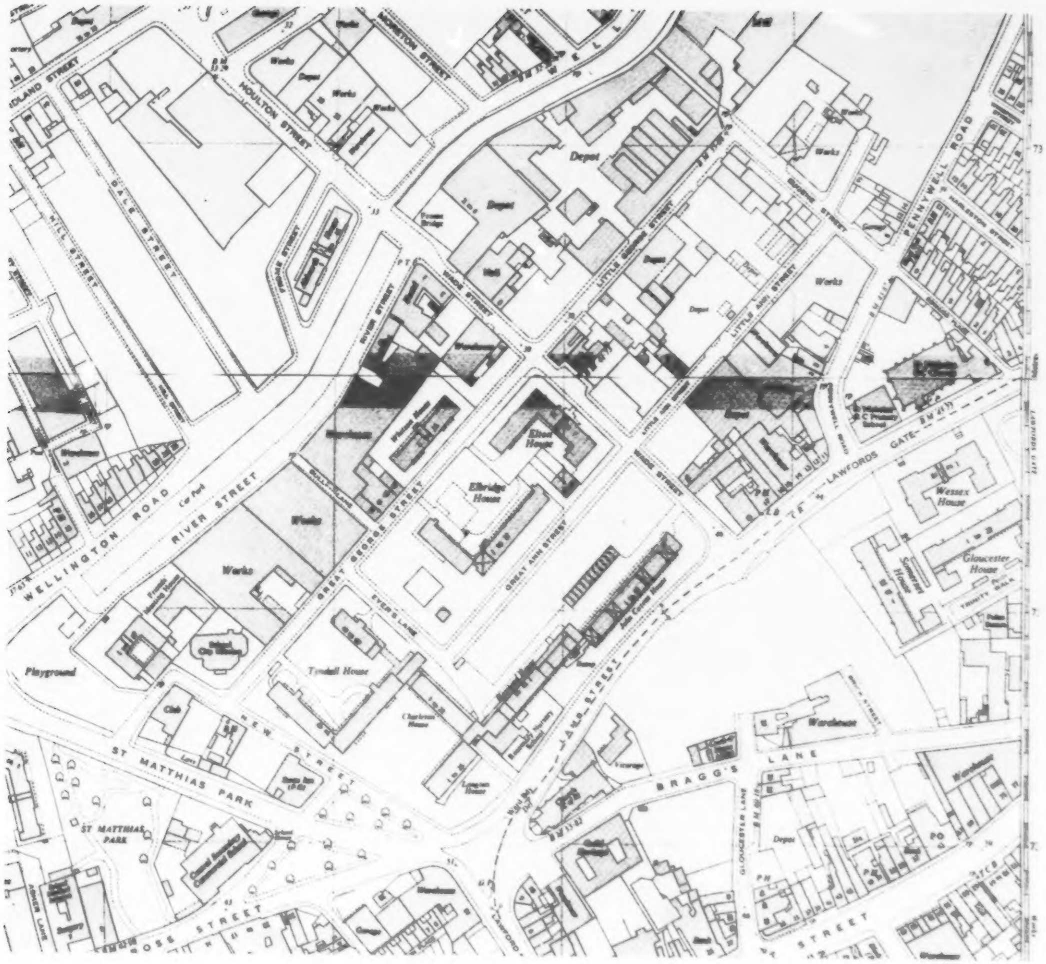

MIDLAND STREET
HOULTON STREET
MORETON STREET
DALE STREET
HILL STREET
Works
Depot
Depot
Mill
WADE STREET
RIVER STREET
LITTLE GEORGE STREET
LITTLE ANN STREET
Works
Depot
PENNYWELL ROAD
Warehouse
Eltan House
Elbridge House
WELLINGTON ROAD
Car Park
RIVER STREET
GREAT GEORGE STREET
GREAT ANN STREET
Works
Works
EVER'S LANE
Tyndall House
Playground
Club
NEW STREET
ST MATTHIAS PARK
ST MATTHIAS PARK
Charleton House
Langton House
Ann Court House
JAMES STREET
Vicarage
LAWFORDS GATE
R C Primary School
Wessex House
Gloucester House
Somerset House
TRINITY WALK
Warehouse
BRAGG'S LANE
GLOUCESTER LANE
Depot
Warehouse
PO
PH
STREET
ROSS STREET
Garage
Warehouse
73

FIG 179

Eyer's Lane (earlier Ayres Lane and in the C18 Steer's Lane), St Jude's, Bristol, 1969, looking east. Urban development has entirely opened out this lane, only the lamp-post (centre rt) remaining from pre-clearance times.

FIG 180

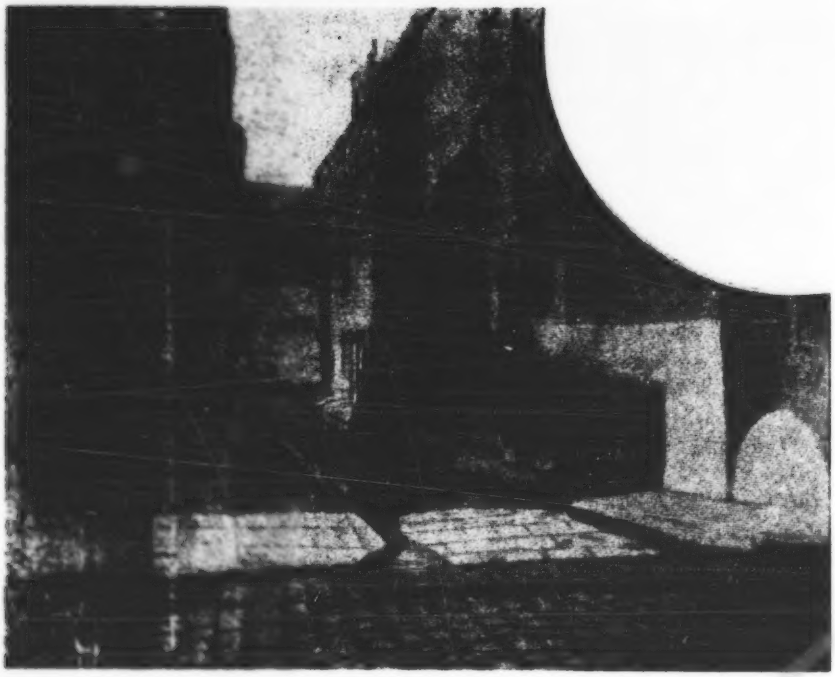
Bull Lane (called Tanners Lane in the C18), St Jude's, Bristol, 1969, looking NE. This lane has also been opened out by clearance in recent years; the older cobbled surface appears through the later tar covering.

FIG 181

Bull Lane, St Jude's, looking north from junction of Eyer's Lane and Gt George St. Buildings at corner of Bull Lane and Gt George St (centre) are the only pre-clearance premises still (1969) standing on Gt George St: they are numbered left to right 39 to 45, the central brick warehouse being number 41-43. The flats beyond these buildings is Whitson House, the earliest piece of urban renewal in St Jude's. FIG 208 showing Gt George St prior to the clearing of all the foreground here was taken looking NE from a spot in the middle of Gt George St on the extreme right of this picture.

FIG 182

Copy of photograph of Grace's Ct, Gt George St, St Jude's, looking from Gt George St and probably taken late in 1902. The cobbled street and flagged pavement are visible (cf FIGS 205-06). Grace's Ct (and its twin Maye's Ct directly NE) lay off Gt George St near its SW end (FIG 174) and appears to have been the Lancashire Ct on Roque's plan of 1742 (FIG 169); it is shown as Grace's Ct by Ashmead in 1828 (FIG 168) but it and Maye's Ct were demolished and the area taken over by the Paint and Varnish Works originally to the NE between 1903 (FIG 175) and 1952 (FIG 176) (Anonymous 1903: 450).

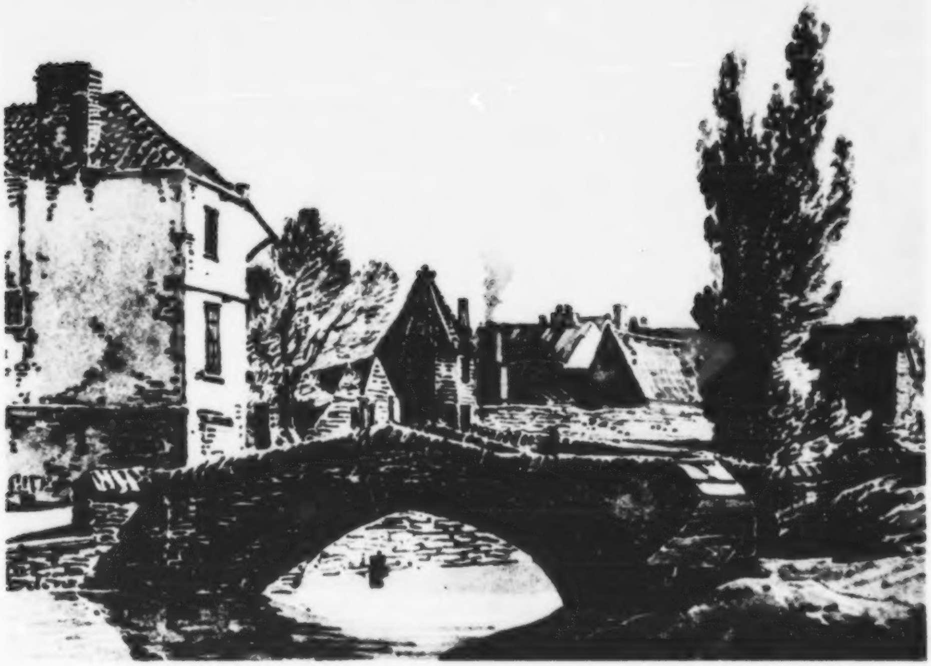


FIGS 183-184

Two pen and ink and watercolour drawings by H. O'Neill both dated 1821, and catalogued in the Braikenridge Collection in the City Museum and Art Gallery, Bristol, as respectively "Traitors Bridge at the end of the Rope Walk rebuilt with improvements 1798" and "Frome Bridge the first bridge above Traitors Bridge at Earls Mead" (Braikenridge catalogue numbers M 2908 and 2909).

The actual identifications of the two bridges shown are extremely difficult to determine, but as is discussed in the text (pp722-3, also p. 701 n.89), it appears that FIG 183 is in fact a view, looking south of Quaker's Bridge, a footbridge across the Frome linking River St and River Ct (off New St) with the Rope Walk and sometimes confusingly called last century Traitor's Bridge (see FIG 174, where it is correctly named, though spelt Quakers' Bridge); while FIG 184 is a view of Frome, earlier Traitor's, Bridge linking Wade and Hulton Sts across the Frome and upstream a few hundred yards from Quaker's Bridge - the view here is towards the NE, the site of the future Municipal Lodging House, later the Salvation Army's hostel Redwood House (FIGS 187 and 189) being on the extreme right here (City Art Gallery, Bristol).

1793



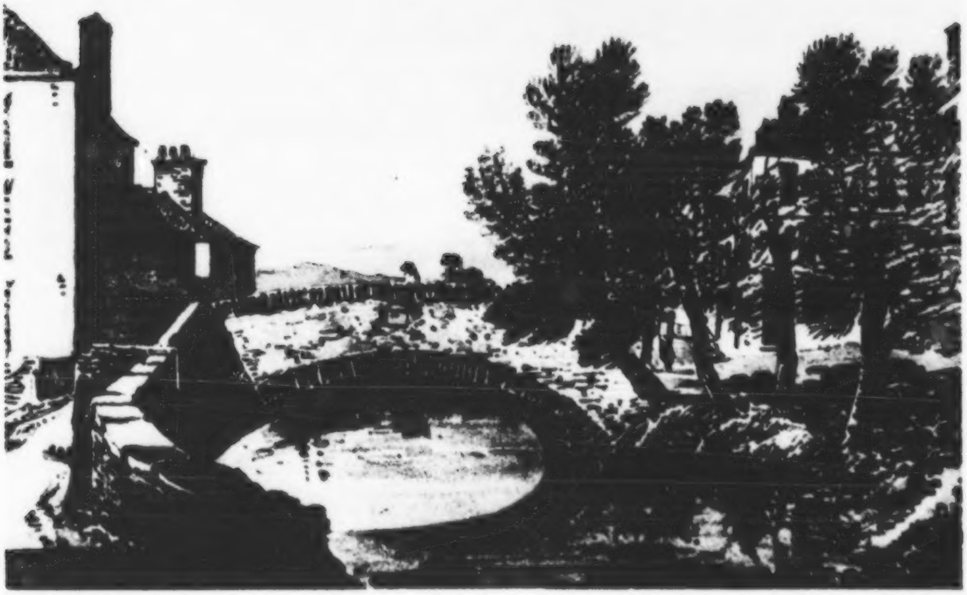


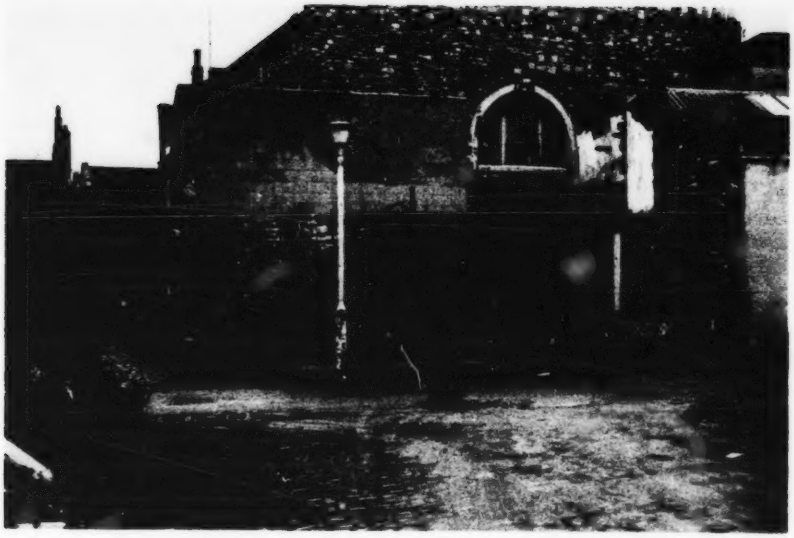
FIG 185

Remains of the "Wool Pack" tavern on Eugene St, St Jude's, 1969, opposite junction of Little Ann St with Eugene St, looking NE. The cul-de-sac running off Eugene St to the left of the photograph has apparently never had a name; the house on it centre distance (see FIG 186) being la Eugene St. Originally this lane may have been to give access to the now built-over Dolman's Yard graveyard shown on Ashmead's 1828 plan (FIG 168), the site of which lies left of the photograph. The large stone building in the background with a semi-circular window is the Vestry Hall (cf FIGS 186 and 191) built 1880 on the site of the St Philip's Workhouse on Pennywell Rd (beyond photograph to right). Note the panel of diamond-shaped decorations - red and black - beneath the boarded-up windows of the "Wool Pack"; note also the cobbled road and pavement surfaces.

FIG 186

Number la Eugene St, St Jude's, 1969. Note mildly-pretentious door- and window-lintels and door capitals. The stone building in the background is again Vestry Hall (cf FIG 186 and 192).

1795



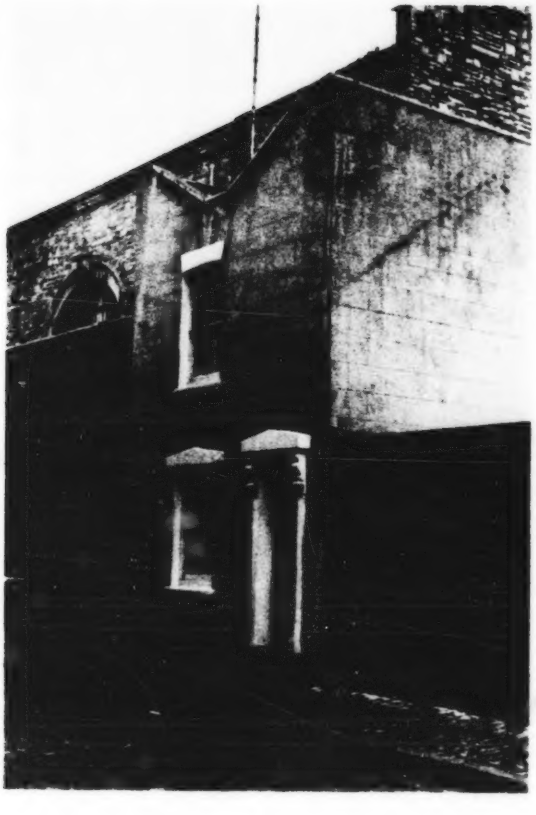


FIG 187

Illustration dated 1905 of the Municipal Lodging-House built that year at the corner of Wade (left) and River (rt) Sts, St Jude's and now the Salvation Army hostel Redwood House (see FIG 188). View looking south. FIGS 209-12 show the inside of the Lodging House in 1905 (Stone 1909: 105 lower illus).

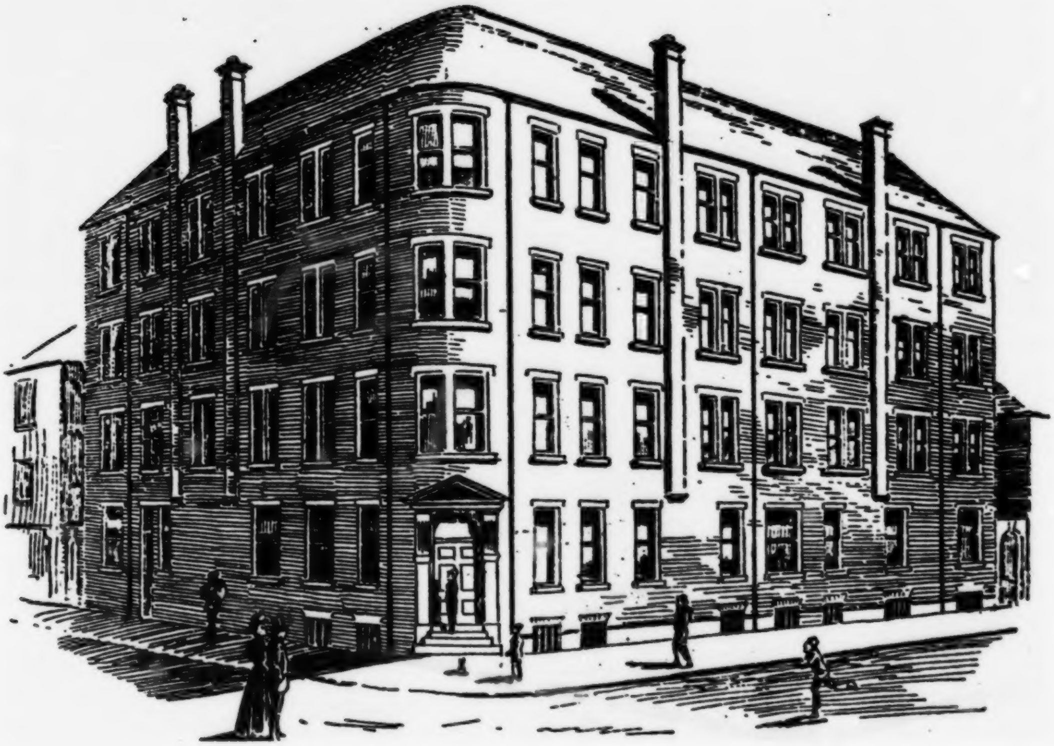


FIG 188

Redwood House, the Salvation Army hostel at the junction of Wade and River Sts, St Jude's, built by Bristol Corporation in 1905 (see FIG 187) as a model lodging-house for an area notorious last century for its common lodging-houses. View looking south, 1969. Note the different window lay-out on right of entrance in this illustration compared to the lay-out in the preceding illustration, suggesting that the 1905 illustrations in Stone (FIGS 187, 209-12) may have been made before the building was constructed. The Frome runs from left to right between the railings at left and the wall beyond; Wade St-Houlton St (running left to rt centre) crosses the Frome here at what was known in the C18 as Traitor's Bridge and after reconstruction in 1798 as Frome Bridge (cf FIG 184). From this point on until it enters the Floating Harbour the Frome is culverted.

FIG 189

View looking SW along little George St, St Jude's towards Wade St in the distance (on line of shop with "Spear's" written on it - cf FIG 201), showing the desolation in the wake of urban clearance of the area. Photograoh taken 1969.

FIG 190

School at corner of New and River Sts, St Jude's, Bristol, converted from or built on site of the Friends' Poorhouse, a foundation dating from the end of the C17. The date of this illustration is not given, but must be ca. 1930; the property was converted into the present New St Flats (cf FIGS 174, 176, 178) apparently shortly after this date (Anonymous n.d.(26): 8-9).

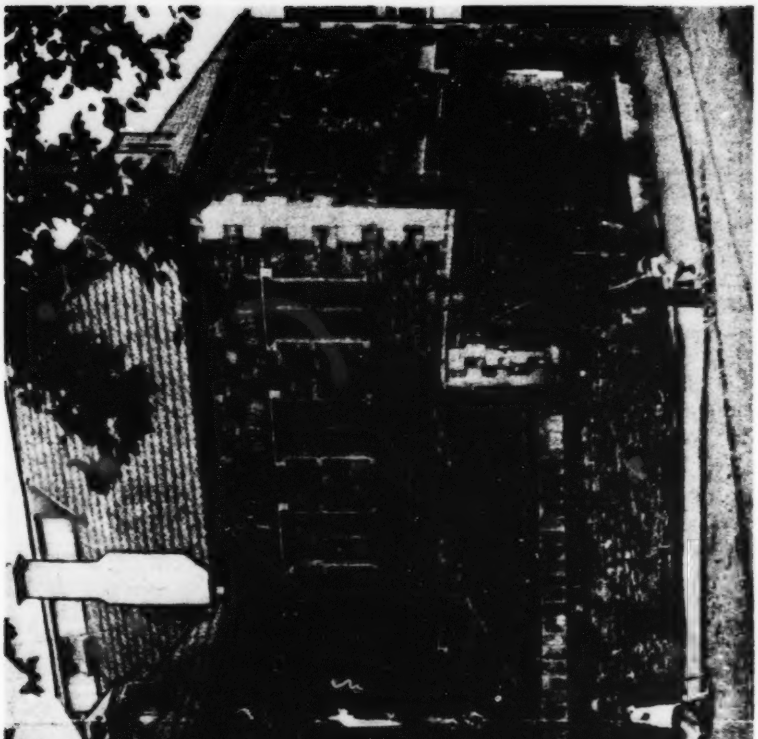
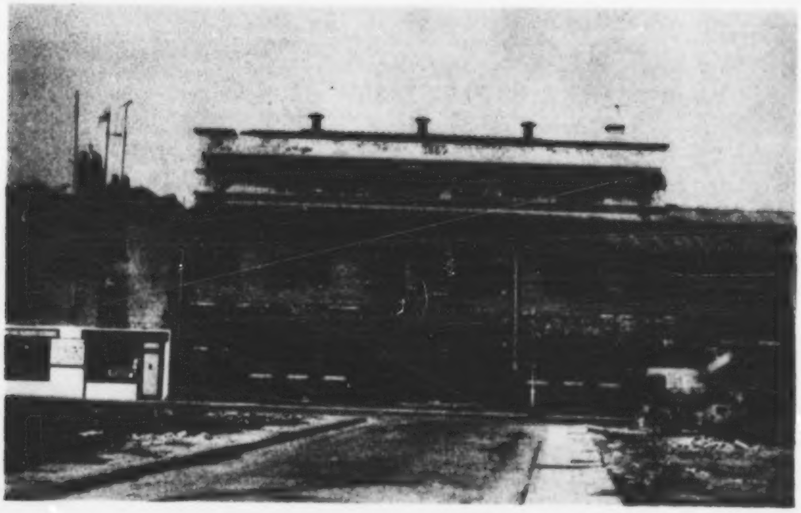


FIG 191

Vestry Hall, Pennywell Rd, St Jude's (cf FIGS 185-86) built 1880 on the site of St Philip's Workhouse which in turn had been erected in the 1730s. Despite its name, Vestry Hall laterly served as a cinema. View looking NW from Harleston St in 1969; slum-clearance in progress in surrounding area.

FIG 192

Bristol City Mission "kitchen" service being held in one of the St Jude's area lodging-houses, probably in 1920s. Photograph taken from Edwards 1927, where the author apologizes for the men being dressed in their "Sunday best" clothes, donned in anticipation of being photographed.



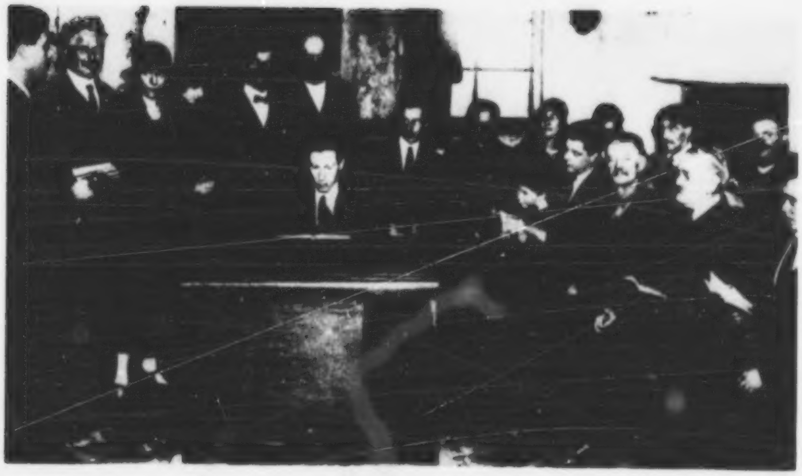


FIG 193

Three photographs of the St Jude's area, probably in the 1920s. Top: one of the two Gt Ann St mission-halls of the Bristol City Mission; Centre and Bottom: two unidentified scenes of courtyards in the St Jude's area - the bottom view may be Allen Ct (earlier Dolman Ct) off Eugene St (see FIG 174), an area now covered by industrial buildings (Edwards 1927).

FIG 194

The "Swan" tavern, New St, St Jude's, 1969. Although the present appearance is fin-de-siecle this public house is recorded in 1787. This view looks north; the main entrance is now on St Mathias Park, the road coming in from the left of the photograph and only built at the end of the C19 to provide better access from central Bristol to Stapleton Rd and Lawrence Hill. New St lies behind the "Swan", and is visible on the extreme right.

Some of our Youthful Clientele

Two Examples of our Parishes"

FIG 195

The "Volunteer" tavern 6 New St, St Jude's, 1969, photograph taken looking south, Gt George St in foreground. As a tavern the "Volunteer" was established only in the 1850s, but as the only pre-clearance building now standing on New St it is probably typical of the street fronts of this part 100 and more years ago (cf FIG 205). The "Volunteer" is in fact a cider-house, with spartan scrubbed-board interior and iron stove in the middle of the bar. Notices in the bar warn that draught cider will not be served after 7 p.m. except to known patrons; known patrons comprises 10-till-2 6-till-10 elderly regulars probably from Redwood House, the nearby Salvation Hostel (FIG 188)

FIG 196

The "Sportsman's Arms" tavern (right) and the shell of the derelict "Ship" tavern immediately adjacent, respectively number 20 and 18, Wade St, St Jude's, 1969. Photograph taken from Gt George St looking east; Little George St, a continuation of Gt George St, runs off at left. The "Ship" was of C18 foundation while the "Sportsman's Arms" dates only from the end of the C19 and probably built or at least heavily reconstructed at that time, for it is set back from the street as though conceived as part of a piecemeal road-widening plan, and the green-glazed tile front probably dates to this period. Note the capitals on the door frame and window-edges on the "Ship". In the far background right is the "Swan with Two Necks" (see FIG 197).

FIG 197

The "swan with Two Necks" tavern, 12 Little Ann St, St Jude's, 1969, photograph looking north. This tavern is recorded (as the "Swan") in the 1790s; its landlady has a story that from here coaches left at one time for London, a story which cannot be true for this tavern but is recorded by Latimer (193: 269) for the "Lamb" on West St, a few hundred yards south of this area. Swan Ct, a narrow vennel connecting Little Ann and Little George Sts last century, ran on the left (SW) side of the pub; and 1883 account of the St Jude's slum mentioned the Swan Ct area as one where toilets were in the living-rooms of homes.

FIG 198

15 Eugene St, St Jude's, 1969, at corner of Eugene St and Little George St, photograph looking west. Note the heavily-eroded lintel and capitals on the doorway.

FIG 199

46 Wade St, St Jude's, 1969, looking east. Lamb St-Lawford's Gate lies out of the picture immediately to the right.

FIG 200

8 Wade St (foreground) and St Jude's School, latterly a hall (left), St Jude's, 1969, looking north from corner of Gt George and Wade Sts. Frome Bridge railings can just be seen in extreme distance left (left of figure). 8 Wade St, latterly Bassett's newsagents, was in the second half of the C19 and the earlier C20 the "Duke of York" tavern.

FIG 201

17 Wade St, St Jude's premises almost opposite those shown in FIG 200. Gt George St joins Wade St just beyond left of photograph (cf FIG 189). Note the capitals at top of ground-floor level at either end of building. The building on the extreme right is the Salvation Army Hostel, Redwood House (FIG 188) Milsom Ct lay under the brick warehouse centre as did 11 Wade St; the latter property and 1-6 Milsom Ct, all owned by a Rev. Herbert Tanner, were condemned in 1915 as unfit for human habitation.

FIG 202

Remains of Pattern's Ct, off Little Ann St, St Jude's, 1969, looking NW. The width of the entryway into the court can be seen beneath the wheels of the lorry on the left. The court is now used as a tyre dump; the size of the rooms in this court can be judged by the marks in the plaster on the wall on the right at second-storey level.

ROBERTSON & CO. LTD
TYRE MERCHANTS
BRISTOL 692844

FIG 203

View looking north from junction of Wade St and Gt and Little Ann Sts, St Jude's. In centre distance are the remains of Pratten's Ct, the room sizes being indicated by the vertical marks in the plaster on the wall (cf FIG 202). Entrance to the court was from Little Ann St, the entry-way being where the lorry (rt) is parked. Extreme left is the "Sportsman's Arms" (FIG 196) on Wade St; extreme right the "Swan with Two Necks" (FIG 197).

FIG 204

Pipe Lane, Temple Meads, Bristol, 1969, looking NE. Pevsner (1958: 429) dates these houses to the late C18; the door-lintels and capitals appear to be similar in style to those noted on several St Jude's premises (e.g. FIGS 186, 196, 198 and 201).

FIGS 205-206

Copies of two photographs of Gt George St, St Jude's, Bristol, probably taken late in 1902 (cf comments below original caption in FIG 205). Fig 205 is a general view of the street, showing the cobbled road surface and flagged pavement and the general type of building in the area, evidently three-storeyed (cf FIG 195). FIG 206 shows a detail of part of the front of one house, again illustrating the cobbled street and flagged pavement and in this case, probably unusually, what appears to be (at right) a bay window (Anonymous 1903: 448 and 450 respectively).

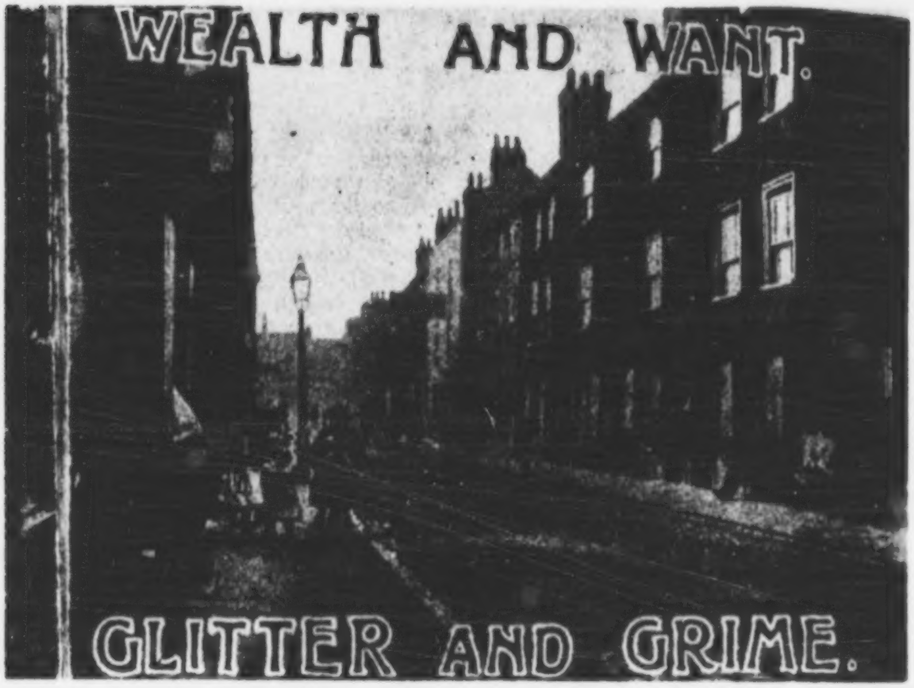

WEALTH AND WANT.
GLITTER AND GRIME.

FIG 207

Movements of the Carey (squares and triangles) and Okely (solid circles) pipemaking businesses at the end of the C18 and in the first quarter of the C19.

The triangles mark the moves of John Carey who is recorded at Castle Green in 1784 with his father Isreal Carey II; and then alone at Castle St 1791-92 (FIGS 213-14); at Old Market St 1794-95; at Redcross St 1797-1801; at Old Market St once more 1805-08 (with another premises at Coal Yard, Bread St, noted 1806-08); at Bread St alone 1809-10; and at Lamb St 1811-15 (relevant pages of 1816 directory missing; no mention 1817 and subsequently). The open triangles in this progression denote the second appearance of Old Market St and Redcross St, which could have been at the same premises as those occupied previously.

The squares denote the moves of John Carey's son Isreal Carey III. He appears in 1809-10 at Coal Yard, Bread St - his father's premises (see above) - but with no trade noted; in 1811 he is listed as a pipemaker on Bread St (again presumably his father's premises, so marked on the map with an open square); in 1812 he is on Gt Ann St; in 1813-14 Pennywell Lane; in 1815 Gt George St and River St (apparently a premises running from one street to the other); in 1823-26 on New St; and in 1827-29 on Stoke's Croft.

The solid circles indicate the moves of successively John Okely II, his widow Martha, and his son William. John is recorded at Lewin's Mead 1791-98; Martha at Lewin's Mead 1800-05; Martha and William together at Under the Bank (present west side of Colston Avenue) 1806-12; William alone at Under the Bank 1813-21; at Redcliff Back with a retail shop on Redcliff Hill 1822; at Redcliff Hill alone 1823 (which may, however, represent an inadvertent omission of the Redcliff Back entry from the directory, hence the use of an open circle in the map). In 1824-26 he is not mentioned, and in 1827 he appears for the last time at St John's Bridge.

(c) Geographia Limited, Crown Copyright Reserved

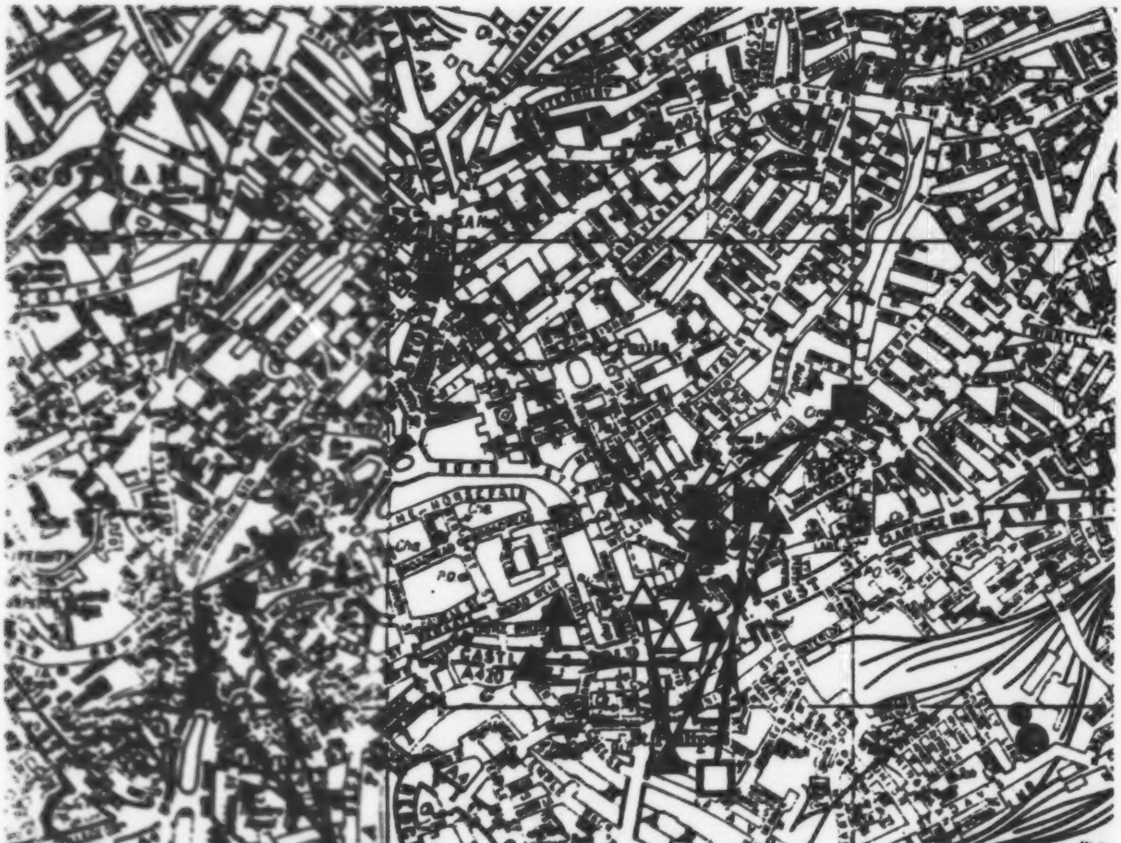
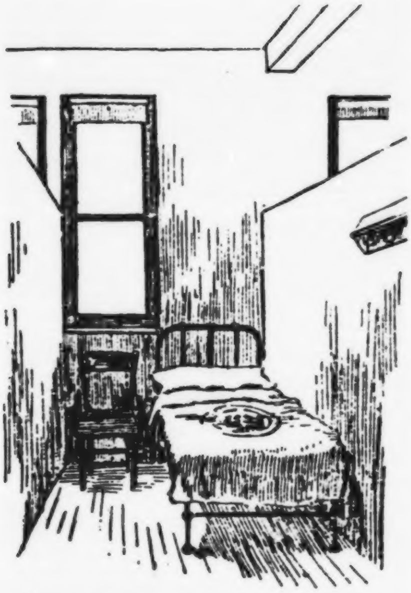

TEMPLE MEADS
REDCLIFF
WEST
CLARENCE RD
WINDMILL HILL
VICTORIA
St. Phili

FIG 208

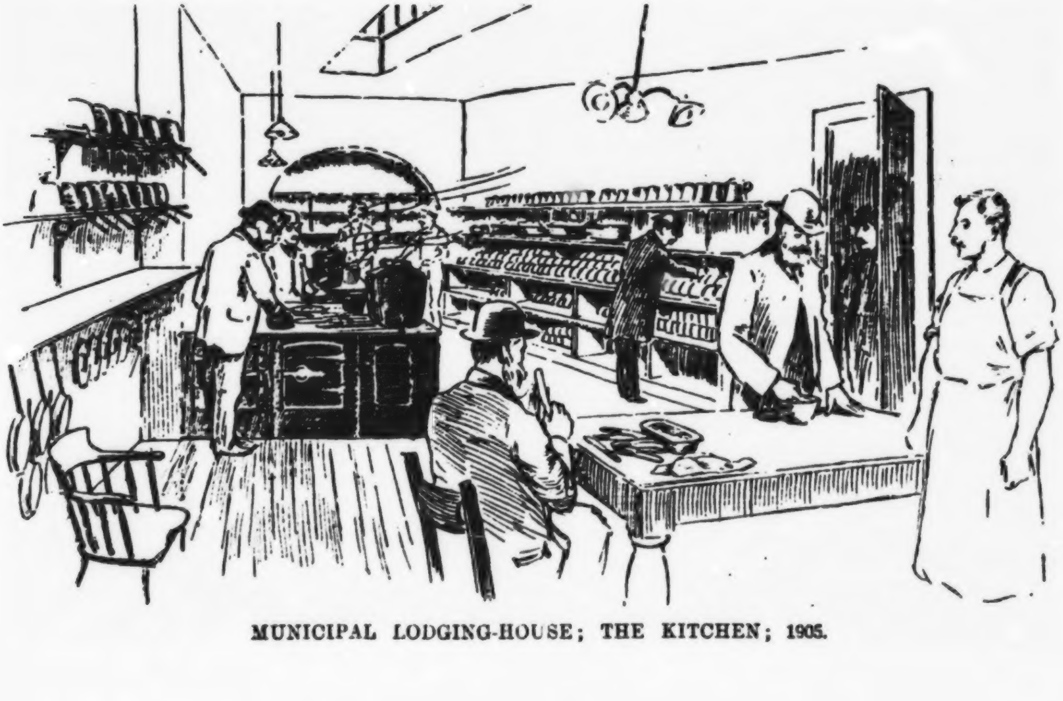
Photograph in the Bristol City Museum's collections showing Gt George St looking NE, with Wade St just visible crossing in the middle distance. The building just in view on the extreme left, set back from the street, is Whitson House (cf FIG 181) the earliest piece of urban renewal in St Jude's. The picture is undated, but internal evidence (see pp723-4) places it between late 1937 and mid-1940 or perhaps late 1939 (City Museum, Bristol).

FIGS 209-212

Four illustrations depicting the inside of the Municipal Lodging-House (now the Salvation Army hostel Redwood House, FIG 188) opened 1905 at the corner of Wade and River Sts, St Jude's (cf also FIG 187). FIG 209 shows bedroom accomodation, FIG 210 the kitchen accomodation - lodgers had to bring their own food (Stone 1909: 106 lower illus and 107 upper illus). (FIG 211 and 212 over).



MUNICIPAL LODGING-HOUSE;
A CUBICLE; 1905.



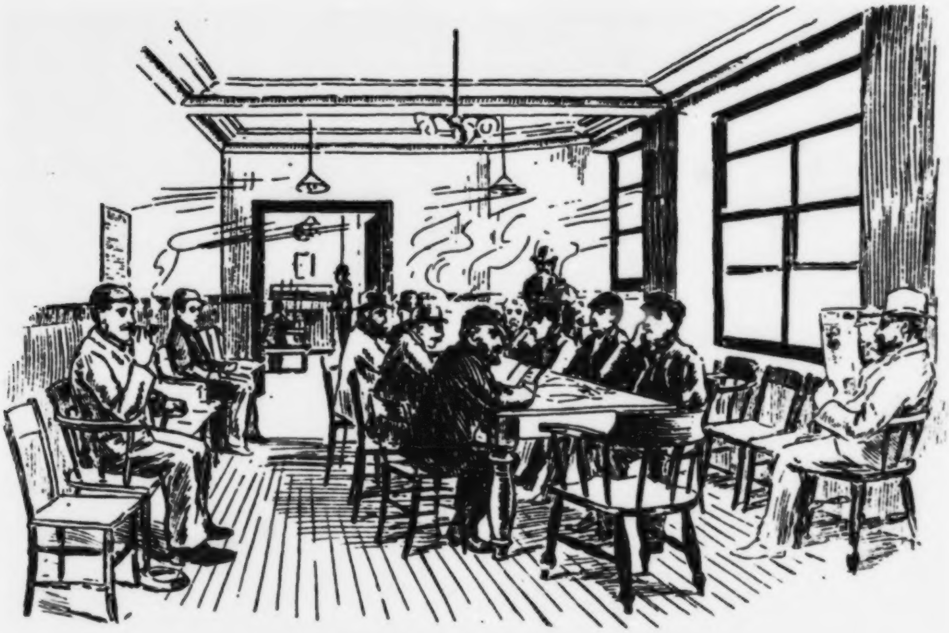
MUNICIPAL LODGING-HOUSE; THE KITCHEN; 1905.

FIG 211

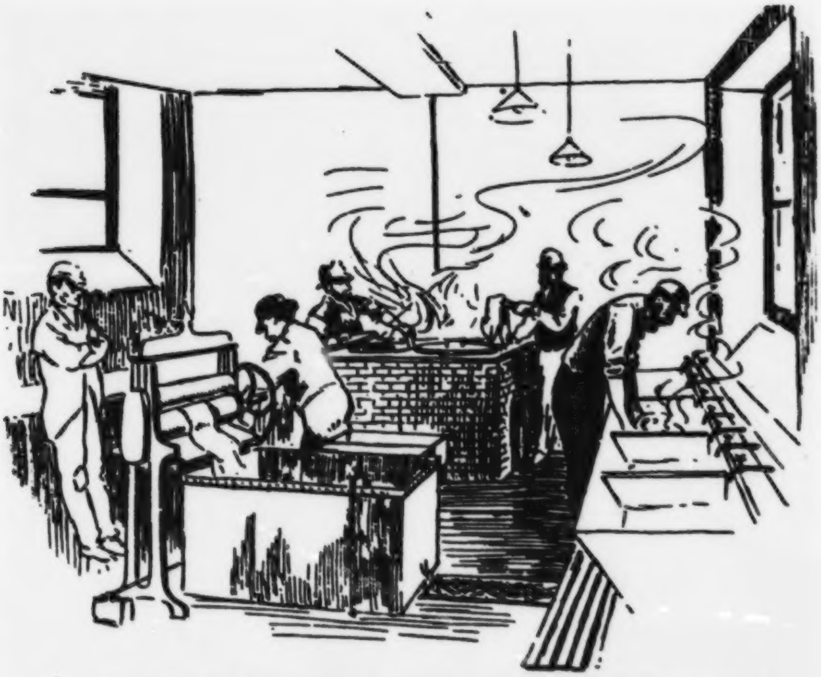
Reading room at the Municipal Lodging-House (Stone 1909: 107 lower illus).

FIG 212

Laundry in the basement of the Municipal Lodging-House (Stone 1909: 106 upper illus).



MUNICIPAL LODGING-HOUSE; 1905.



MUNICIPAL LODGING-HOUSE; THE WASH-HOUSE; 1905.

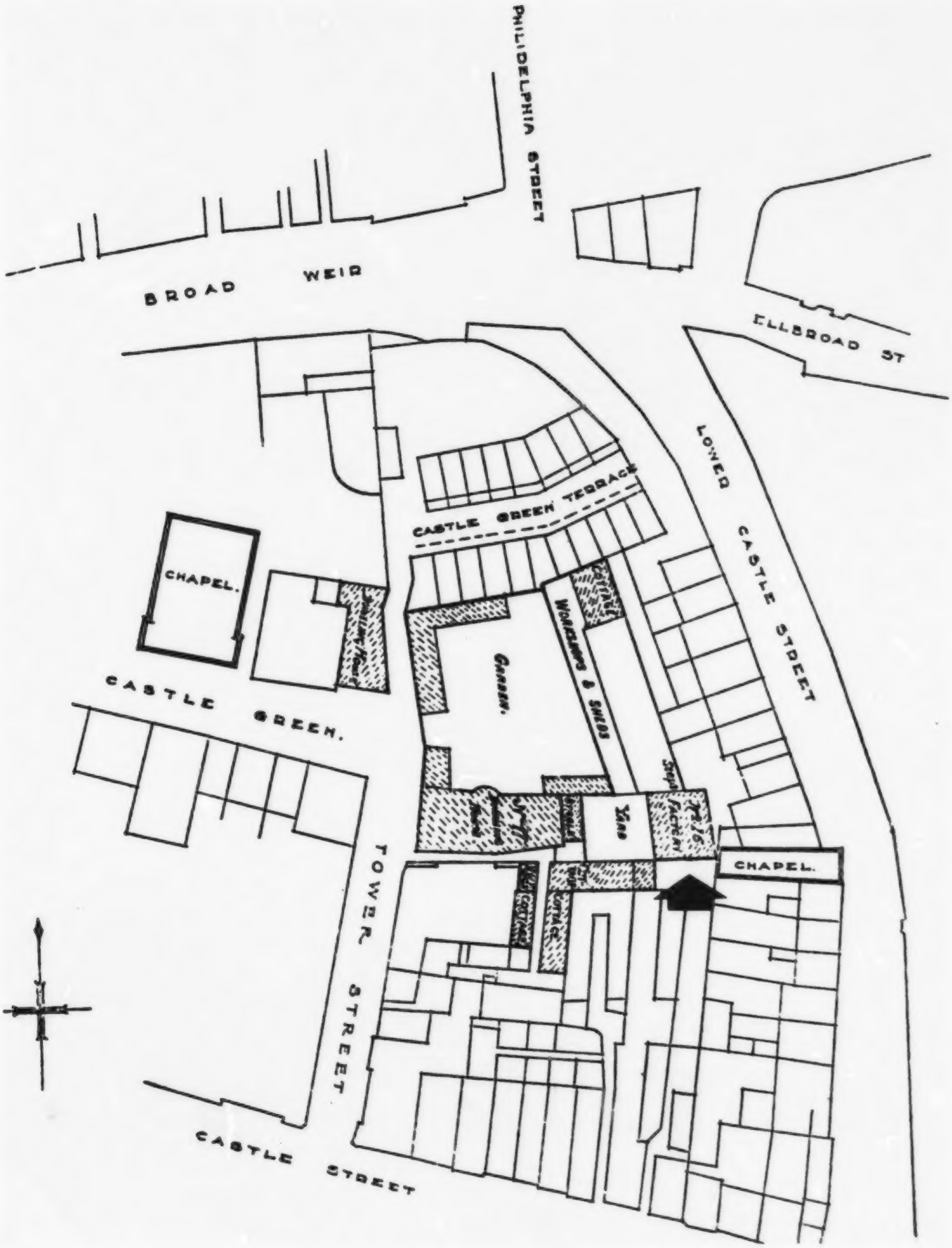
FIG 213

Etching of 15 (not, as original caption says, 17) Castle Green, Bristol, from Lower Castle St looking west (cf FIG 216) 15 castle Green was occupied by Richard Champion the porcelain manufacturer ca.1771-82 and by pipemakers Isreal Carey II and his son John ca. 1782-87 later (cf FIG 207) (H. Owen 1873: 20).

FIG 214

Plan of the Castle Green-Tower St Castle St-Lower Castle St area of Bristol showing (arrowed) 15 Castle Green (cf FIG 213) occupied ca. 1771-82 by Richard Champion the porcelain manufacturer and then by pipemakers Isreal Carey II and his son John ca.1782-87 or later (Pountney 1920: 216). (Subsequently to the drafting of this thesis a pile of clay-pipe wasters attributable to Isreal Carey was discovered at the angle of Broad Weir and Lower Castle St (R.G. Jackson 1972).)

1829


PHILIDELPHIA STREET
BROAD WEIR
ELLBROAD ST
LOWER CASTLE STREET
CASTLE GREEN TERRACE
CHAPEL.
COTTAGE
WORKSHOPS & SHEDS
GARDEN.
CASTLE GREEN.
YARD
FACTORY
CHAPEL.
COTTAGE
COTTAGE
TOWER STREET
CASTLE STREET

FIGS 215-216

The dark-coloured building centre in FIG 215 is 136 York Rd, Temple Meads, Bristol, occupied by pipemaker Thomas John Corcoran for the single year 1904. Photograph taken 1969, looking west. FIG 216 shows (arrowed) the rear of the same premises. Photograph taken 1969, looking north.

FIG 217

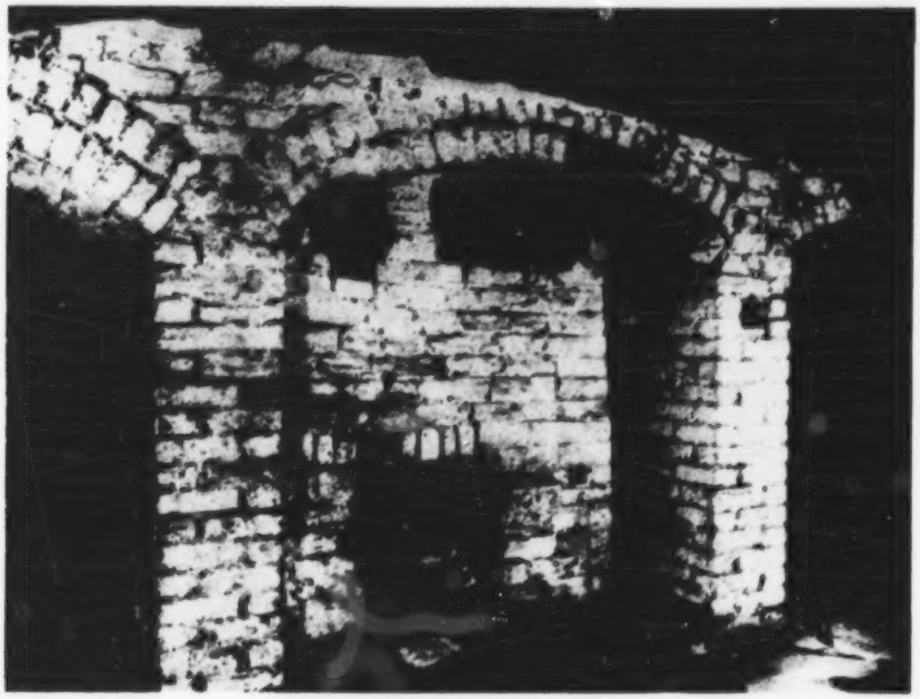
Bath St, Bristol, looking SW, 1969. Number 14, where Sarah Ring is noted 1815-1816 as a pipemaker as well as having a "China, Class and Earthenware Warehouse, wholesale, retail and for exportation", is the nearest part of the first light-coloured second- and third-storey fronts in the centre of the picture. The original doorway has been converted into a window of the same form as the others now on the ground floor of this premises, but the doorstep can be seen directly to the left of the rear wheel of the motor-cycle centre. Sarah Ring's kiln still exists in the basement (FIGS 219-20); the property is now owned by Courage Breweries.

FIG 218

Bath St, Bristol, looking east, 1969. The frontage of the street is probably still substantially unchanged from what it would have been in the early C19; the ground-floor windows right are probably the original form (cf those at 14 Bath St in FIG 217). 14 Bath St lies near the extreme left of the illustration, behind the third-last car parked along the kerb.

FIGS 219-220

Two views of kiln in basement of 14 Bath St, Bristol, where Sarah Ring is listed as a pipemaker for the years 1815-16. Sarah Ring also had a "China, Glass and Earthenware Warehouse, wholesale, retail and for exportation" in this premises, which is now owned by Courage Breweries (Courage (Western) Ltd, Bristol).



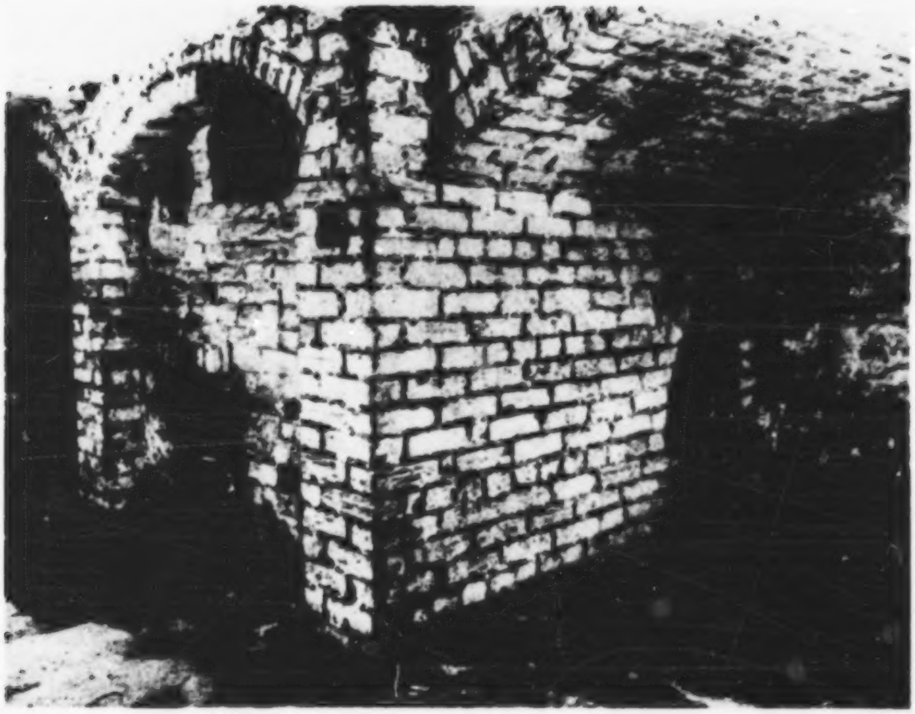


FIG 221

East St, Bedminster, Bristol, 1969, looking east. Charles Tovey is recorded 1889-91 as a pipemaker working at 143 East St and sharing the premises with one Robert Morgan, beer-retailer Present numbering of East St gives Jack Tully's bookmaking premises (centre) as number 141 and Lloyds Bank (right) as 145: the bank was erected in 1913 on the site of numbers 143 and 145, and a local resident remembers a quantity of clay pipes being found when the site was being excavated prior to the foundations of the bank being laid (Lloyds Bank, Bedminster, *in litt*. 5 February 1974). The passageway visible in the centre of the picture, on the extreme right of Tully's premises and against the side of the bank building is the alley known as Norfolk Place. Architecturally the Tully premises, formerly "The Queen's Head" public house, looks as though it preserves its C19 appearance, suggesting number 143 may have looked similar last century.

HISTORY AND ARCHAEOLOGY/HISTOIRE ET ARCHEOLOGIE

Publications available by mail from Printing and Publishing, Supply and Services Canada, Ottawa, Ontario K1A 0S9, Canada, or through your bookseller.

1 Inventaire des marchés de construction des archives civiles de Québec, 1800-1870, by Geneviève G. Bastien, Doris D. Dubé and Christina Southam. 1975. 3 vols. $20.00; $24.00 outside Canada.

2 Histoire économique et sociale de Saint-Lin, 1805-1883, et l'importance de la famille Laurier, by Réal Bélanger. 1975. $4.00; $4.80 outside Canada.

3 Historique structural du fort George, by Yvon Desloges. 1975. $5.00; $6.00 outside Canada.

4 Plans de l'architecture domestique inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture commerciale et industrielle inventoriés aux Archives Nationales du Québec à Montréal; Plans de l'architecture publique, de l'architecture religieuse et du génie mécanique inventoriés aux Archives Nationales du Québec à Montréal, by André Giroux, Nicole Cloutier and Rodrigue Bédard. 1975. 3 vols. $11.00; $13.20 outside Canada.

5 A Report on a West Coast Whaling Canoe Reconstructed at Port Renfrew, B.C., by E.Y. Arima. 1975. $5.50; $6.50 outside Canada.

6 Louisbourg and the Indians: A Study in Imperial Race Relations, 1713-1760, by Olive Patricia Dickason; Surgeons and Surgery in Ile Royale, by Linda M. Hoad. 1976. $10.50; $12.60 outside Canada.

7 Archaeology and the Fur Trade: The Excavation of Sturgeon Fort, Saskatchewan, by Norman F. and Anne Barka. 1976. $6.25; $7.50 outside Canada.

8 Navy Hall, Niagara-on-the-Lake, by David Flemming; Fort Wellington: A Structural History, by David Lee; The Battle of the Windmill: November 1838, by David Lee. 1976. $5.75; $6.90 outside Canada.

9 Fort George on the Niagara: An Archaeological Perspective, by John P. Wilson and Linda D. Southwood. 1976. $8.00; $9.60 outside Canada.

10 Etude sur la vie et l'oeuvre de Jacques Cartier (1491-1557), par Réal Boissonnault; Fouilles au parc Cartier-Brébeuf, Québec, 1959, par Kenneth E. Kidd; Fouilles au parc Cartier-Brébeuf, Québec, 1962, par John H. Rick; Archéologie de sauvetage au parc Cartier-Brébeuf, la ville du Quebec: juillet-aout 1969, par Marcel Moussette. 1976. In press.